UNIVERSITY OF PENNSYLVANIA

An Investigation to Determine the Extent to Which the Effect of the Study of Latin Upon a Knowledge of English Derivatives Can Be Increased by Conscious Adaptation of Content and Method to the Attainment of this Objective.

A. A. HAMBLEN

A THESIS

IN EDUCATION

RESPECTFULLY SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL OF THE UNIVERSITY OF PENNSYLVANIA, AS A PARTIAL REQUIREMENT FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

PHILADELPHIA

1925

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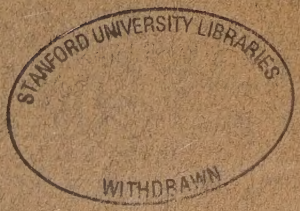

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CONTENTS

PAGE

I

Introduction. The Relationship of This Study to the American Classical League Investigation 7

II

Description of Present Experiment. Aims. Method of Comparison. Methods for Computing Progress Made 13

III

Measuring the Results of the Experiment. In this chapter, a comparison is made between the classes stressing Derivation and those not so doing 24

IV

Evaluation of Methods in the Control Classes, where Derivation is not stressed 33

V

Evaluation of Methods Used in the Experimental Classes, where Derivation is stressed 37

VI

Conclusions 47

Appendices 52

Bibliography 78

PREFACE

The following thesis is an undertaking planned upon a scientific basis, and has, for its aims, first, a *determination* of what automatic transfer there may be from the study of Latin over into the field of English, or more particularly, of a more intelligent understanding of English derivatives; and second, a *determination* of the extent to which this amount of transfer value may be increased when the Latin class is taught with this end—derivation—strictly in view.

This is a problem in educational research. It is not a defense of the classics. The first part of the problem is measured in the most approved and most recently developed means of educational measurement, and is done under the supervision of the Department of Education of the University of Pennsylvania. The second part of the problem, in which the personal equation enters largely, cannot be so accurately measured in the light of present educational achievement, and the author has made no attempt to claim that the results are absolutely scientific—they are as scientific as the means of measurement at hand in meeting such problems can make them. The care used in the procedure of the experiment and the conservatism used in analyzing the results are quite apparent throughout the discussion.

The author wishes to voice his gratitude to the Department of Education of this University for suggestions given, and especially to evince his deep appreciation to Professor Arthur J. Jones and the members of a Seminar Course in Secondary Education, wherein both Doctor Jones and the students manifested a most helpful interest.

A. A. H.

Lawrenceville, N. J.

I

Description of the Purpose and Scope of the Classical Investigation Conducted by the American Classical League

The special investigation from which the data included in this thesis are derived, is an integral part of the nation-wide investigation being conducted under the general direction of the American Classical League. In order that the place and function of this study may be clearly seen in relation to the investigation, as a whole, it will be necessary to describe briefly the purpose and scope of the general investigation.

The purpose of the Classical Investigation, as announced by the committee in charge, is to prepare a constructive program of recommendations for improvement in the teaching of Latin in the secondary schools of the United States.[1] Improvement in the teaching of Latin may be defined as a better and more effective adjustment of means to the ends proposed. This program, therefore, involves, first of all, a study and evaluation of the actual objectives aimed at in current practice. The objectives in the study of Latin may be divided into four classes:

1. Those objectives which involve the direct instrumental uses of Latin as a language and which may be called the *immediate* or direct objectives of Latin, such as:

(*a*) The ability to read Latin after the study of the language in school or college has ceased.[2]

(*b*) Ability to understand Latin quotations, proverbs, and mottoes occurring in English literature and Latin inscriptions appearing on buildings, memorial tablets, seals, coins, etc.

(*c*) Increased ability to understand Latin words, phrases, and abbreviations found in books and current publications, and increased ability to use such expressions correctly.

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[1] See "The Classical Survey: A Preliminary Report," *Classical Journal*, XVII (October, 1921), 16.

[2] This objective is obviously valid for only the exceptional student whose professional needs or personal tastes call for the use of this ability.

2. Those objectives which are concerned with the application to English and other subjects of the facts learned in Latin. Some of the objectives under this head are:

(*a*) Increased ability to understand and use less familiar English words derived directly or indirectly from Latin and increased accuracy in their use.

(*b*) Increased ability to read English with correct understanding.

(*c*) Increased ability to speak and write correct and effective English through the process of translating from Latin into adequate English.

(*d*) Increased ability to spell English words of Latin derivation.

(*e*) Increased knowledge of the principles of English grammar, and an increased ability to speak and write English grammatically correct.

(*f*) Increased ability to master the technical and semi-technical terms of Latin origin employed in other school subjects, and in the professions and vocations.

(*g*) Increased ability to learn other foreign languages.

3. Those objectives which have to do with the spread of improved efficiency and other disciplinary values. These include:

(*a*) The development of certain desirable habits and ideals which are subject to spread, such as habits of sustained attention, orderly procedure, overcoming obstacles, perseverance; ideals of achievement, accuracy, and thoroughness, and the cultivation of certain general attitudes such as dissatisfaction with failure or with partial success.

(*b*) The development of the habit of discovering identical elements in different situations and experiences, and of making generalizations.

(*c*) The development of correct habits of reflective thinking applicable to the mastery of other subjects of study, and to the solution of analogous problems in daily life.

(*d*) The development of the ability to make formal logical analyses.

4. Those objectives which involve informational and cultural values, such as:

(*a*) The development of a historical perspective and of a general cultural background through an increased knowledge of the facts relating to the life, history, institutions, mythology, and religion of the Romans; an increased appreciation of the influence of their civilization on the course of western civilization, and a broader understanding of social and political problems of today.

(*b*) Increased ability to understand and appreciate references and allusions to the mythology, traditions, and history of the Greeks and Romans.

(*c*) The development of right emotional attitudes toward social situations.

(*d*) A better acquaintance through the study of their writings with some of the chief personal characteristics of the authors read.

(*e*) The development of appreciation of the literary qualities of Latin authors read, and the development of such appreciation in the literatures of other languages.

(*f*) A greater appreciation of the elements of literary technique employed in prose and verse.

(*g*) Improvement in the literary quality of the pupils' written English.

(*h*) An elementary knowledge of the general principles of language structure.

Furthermore, the general investigation of the American Classical League seeks (1) to determine the extent to which the objectives outlined above are attained or attainable, (2) to discover the *means commonly employed* and the *means most effectively employed* in attaining them, and (3) to form a constructive program involving the determination of the most important objectives, and the *means to be recommended as most effective* in attaining them as to the *content of the course, methods of teaching*, and qualification and training of teachers.

This thesis is concerned with the first objective listed under 2 above, and reports the results of a controlled experiment in the teaching of English derivatives in connection with the study of first-year Latin in five high schools of Philadelphia. Its place in the general plan of the Classical Investigation as a whole may be seen in the outline given on pages 6 and 7.

The controlled experiment referred to above was conducted as a co-operative enterprise by the School of Education of the University of Pennsylvania and the Investigating Committee of the American Classical League under the personal direction of Dr. Arthur J. Jones, Professor of Secondary Education, in the University of Pennsylvania.

In each of the five schools participating in the experiment, four parallel groups were chosen—two Latin and two non-Latin—containing pupils of approximately equal initial ability, as follows:

(*a*) A group of pupils in beginning Latin in which no effort was made to teach English derivatives (the Control Latin group).

(*b*) A group of pupils in beginning Latin in which definite study in derivation was given regularly (the Experimental Latin group).

(*c*) A group of non-Latin pupils in which no work in English etymology was given (the Control English group).

(*d*) A group of non-Latin pupils in which regular work in English etymology was given in the English class (the Experimental English group). The pupils in these four groups were paired by a method to be explained later.

From a comparative study of the results secured in these four types of classes, data were sought to provide an answer to the following five questions:

1. To what extent, if any, is there automatic transfer from Latin into the field of English derivatives? The amount of this automatic transfer is measured by subtracting the results secured in the control English group from those secured in the control Latin group.

2. To what extent, if any, is the amount of transfer increased when the teaching of English derivatives is made a conscious objective in connection with the teaching of Latin? The amount of this increase is measured by subtracting the results secured in the control Latin group from the results secured in the experimental Latin group.

3. What methods seem to provide the conditions most favorable for securing maximum transfer? The answer to this

	A. DETERMINATION OF OBJECTIVES		B. DETERMINATION OF CONTENT IN RELATION TO OBJECTIVES	C. DETERMINATION OF METHODS IN RELATION TO OBJECTIVES
I. Preliminary analysis of objectives commonly ascribed to Latin.	II. Studies to determine the validity of objectives ascribed to the study of Latin.	III. A national testing program to measure extent to which certain objectives are attained under present conditions of content and method.	Special studies to determine what content is most effective for attainment of objectives shown to be valid.	Controlled experiments to determine what methods are most effective for attainment of objectives shown to be valid.
	1. Use of foreign languages after graduation. 2. Percentage of beginning students who continue Latin in school and college. 3. Relative importance of Latin and Greek element in English language as a whole. 4. Percentage of Latin pupils studying other subjects in secondary schools. 5. Relative importance of the Latin vocabulary in the 20,000 most important English words. 6. Relative importance of Latin element in continuous English prose. 7. Frequency and range of Latin words, phrases, and quotations, etc., in English. 8. Relative importance of Latin vocabulary in other subjects of the curriculum, etc.	1. *English.* (*a*) General vocabulary. (*b*) Special vocabulary. (*c*) Reading. (*d*) Grammar. (*e*) Spelling. (*f*) Classical references. (*g*) Latin words and phrases. 2. *French.* (*a*) Vocabulary. (*b*) Sentence translation 3. *Roman history.* (*a*) Late Republican Period. (*b*) Caesar Content and Background. 4. *Tests in Latin.* (*a*) Comprehension. (*b*) Vocabulary. (*c*) Sentence translation. (*d*) Syntax. (*e*) Verb forms. (*f*) Composition.	1. English word count. 2. Etymological analysis of 20,000 most important English words. 3. Latin derivatives in English. 4. Latin and Greek derivative lexicon. 5. Determination of familiar and unfamiliar English derivatives. 6. Latin element in technical vocabularies. 7. French word count. 8. Latin words and phrases occurring in English. 9. Grammatical principles applicable to Latin and English. 10. Reading content of the Latin course. 11. Historical content of the Latin course. 12. Classical allusions in English. 13. Relative time spent in preparing Latin and other subjects.	1. English derivatives: 5 Philadelphia schools. 2. English grammar: 10 schools in Iowa. 3. French: 2 Cleveland schools. 4. Spelling: 5 Columbus schools. 5. Roman history: 8 Pittsburgh schools.

question is sought through a comparison of the results secured in the various experimental classes on the basis of detailed information concerning the methods followed.

4. Can any increment in knowledge of English derivatives resulting from the study of Latin be equally well obtained by a course in English etymology without Latin? An answer to this question is sought through a comparison of results secured in the experimental English groups with those secured in the experimental Latin group.

5. Is it worth while from the point of view of teaching English to include a course in etymology in the English class? The answer to this question is sought through a comparison of the results secured in the English control group with those secured in the English experimental group.

It is evident from the brief description just given that the Philadelphia controlled experiment was planned with two fairly distinct practical purposes in view. On the Latin side the object is to determine to what extent growth in English vocabulary results automatically from a study of Latin, and if the amount of such transfer proves not to be satisfactory, to determine what content and method provides most favorable conditions for transfer. On the English side the object is to determine whether the growth in English vocabulary secured through the study of English etymology by non-Latin pupils is sufficiently great when compared with the growth made by Latin pupils to justify the conclusion that English etymology can more economically be taught in connection with the study of English than in connection with the study of Latin, and if so, what content and methods are most effective for this purpose.

The data derived from this controlled experiment have been analyzed by Mr. R. I. Haskell and by the author of this thesis. The data bearing especially on questions 2 and 3 above are analyzed and interpreted in the present thesis; the data bearing especially on questions 1, 4 and 5 above are being analyzed and interpreted by Mr. Haskell in a thesis to be presented to the faculty of the graduate school of the University of Pennsylvania in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

II

Description of Procedure

Section 1. Purpose of This Study

As stated in the preceding chapter the main purpose on the Latin side of the Philadelphia controlled experiment was to determine what methods and content in connection with the teaching of Latin are most effective in helping pupils to increase their knowledge of English words especially those derived directly or indirectly from Latin; and to secure data as to the place and value of definite drill in word analysis or other definite training in making associations between Latin originals and their English derivatives.

The following special problems are involved in an analysis of the data derived from the Latin side of the experiment:

1. To determine *scientifically* to what extent an increased knowledge of English words is attained by pupils who study Latin following the usual prescribed course of study with little or no attention to derivation. No attempt is made in the present study to determine whether any increase in English vocabulary found in such classes is due to the normal growth accruing to all pupils during the ninth grade, or whether it is the direct result of the study of Latin. This problem is discussed by Mr. Haskell in the thesis referred to on page 0.

2. To determine *scientifically* what further increase in English vocabulary, if any, is produced by the study of Latin derivation in the Latin class.

3. To indicate what effect certain kinds of text-books commonly used in ninth-grade Latin have on the attainment of an increased knowledge of English words.

4. To show the relative importance and comparative effectiveness of various teaching devices used in the experimental group in attaining an increased knowledge of English words.

The facts bearing upon the first two problems can be ascertained accurately and scientifically but those involved in the last two are not so susceptible to exact treatment and the personal equation is an important factor.

As already stated, in each high school participating in the experiment the Latin classes involved were divided into control[1] and experimental groups. The control class or classes were taught along the usual lines followed in most schools, little, if any, attention being paid to derivation of words. The experimental class or classes were taught in such a way that derivative work based upon a specific content and specific methods was a conscious and definite aim of instruction.

No effort was made to select or "plant" teachers of special ability for either group. No requests were made of principals or heads of departments that a given teacher should conduct such-and-such a class. There were, in this experiment, teachers of all ages and varying degrees of enthusiasm. The writer would like to emphasize again that the "control" teacher was not interfered with, but was left free to carry out his own methods or "hobbies," if he had them, except that he was asked not to emphasize the relation of Latin to English in the matter of vocabulary. Also no change was made in the text-books used.

The experimental classes, as explained above, were those in which the instructor was asked to teach derivation as a definite aim in so far as it did not interfere with the immediate objectives, namely, growth in power to read and translate Latin, and in a knowledge of vocabulary, forms and syntax. The teacher was asked to put about one-fifth of the total class time either in each day's recitation or in the aggregate to training the pupils in the application of a knowledge of Latin words to a knowledge of English derivatives. In but one case was this proportion of time exceeded; on the contrary it was often decreased.

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[1] The meaning of the word "control" in this use should not be misunderstood and confused with the word "controlled." It might be better to call this class the "basic" class, because it is intended to furnish the point from which, or the standard by which, the gain or loss in vocabulary in the experimental class is to be measured; it is to be used as a means of comparison from which to measure the advancement (or retrogression) attained in the experimental class. The conditions in both classes are expected to be the same, except in the attention given to the one thing the results of which are to be measured, namely, work in derivation.

Care was taken to interfere just as little as possible with the organization of the schools. Otherwise, wholehearted co-operation could not have been procured. Different forms of promotion were employed in different schools, promotion by subject and promotion by class. Arrangements of classes differed. Some were arranged alphabetically, some by groups on the basis of intelligence scores given in the elementary schools, and still others geographically, where annexes of the same central school were used. Therefore, there was considerable practical difficulty in keeping these classes intact through the period covered by the experiment, and provision had to be made for each kind of promotion and arrangement of classes.

Section 2. The Initial Tests

The experiment was begun in February, 1922, with pupils beginning the first half of the first year in high school and continued for two semesters. Originally, the plan was to continue the work for three semesters, beginning in September, 1922, but the plan could not be worked out in time to begin at the earlier date. Also, since the American Classical League wished to have all the data in by May, 1923, it was decided to stop the experiment at the end of two semesters. Preserving integrity of the original groups was in addition becoming increasingly more difficult, especially in the schools where promotion was by subject, and the number of students was dwindling. Out of the original number of four hundred pupils providing one hundred and fifty-four pairs (a procedure to be explained later) only one hundred and eighteen pairs were carried over from the first to the second semester of the experiment. Thus a loss of about 25 per cent took place, a reduction which would have been increased at a still greater rate, after promotions at the end of the second semester. It is an accepted fact that more failures take place in the final half of the first year than at any other point in the Latin course.[2]

All pupils included in the investigation were given three

[2] This fact is proved by an analysis of failures in the high schools of Philadelphia that was made as a basis for the determination of the capacity of summer schools.

initial tests during their first week in high school, February, 1922, namely, the Terman Group Test of General Intelligence, the Thorndike Test of Word Knowledge and the Carr English Vocabulary Test. Second and third forms of the latter two tests were given at the end of the first and second semesters. The initial tests were given on successive days and were carefully administered. The examiners in charge were those approved by the educational authorities at the University of Pennsylvania.

In giving the Terman Group Test of General Intelligence the examiners followed the directions given by Dr. Terman in his "Manual of Directions," sample pages of which will be found in the appendix.

This test and the others used were scored with the greatest care. All scores were checked over again in order to eliminate as far as possible the chance of error, in additions or in copying.

The Terman test was followed on successive days by the Thorndike Test of Word Knowledge and the Carr English Vocabulary Test. The time element on these two tests is not emphasized to the extent that it is in the Terman Test, and usually the pupils finished in less than the allotted time, namely; twenty minutes for the Carr and thirty minutes for the Thorndike. However, no attempt was made to give them on the same day because of the danger that the pupils would be fatigued. The same care was employed in administering these tests as in the case of the Terman Test.[3] It should also be

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[3] The care with which these and following tests were given may be seen from the following letter of instruction sent to all participating schools, as the time approached for giving the final tests:

"The Philadelphia Controlled Experiment will end with the giving of the Carr and the Thorndike word tests during the week of January 15th. The English teachers giving the tests are requested to follow *very carefully* these directions in order that uniform conditions may prevail throughout the entire final testing.

"1. *During the week of January 15th*, give the Carr Test for twenty minutes one day and the Thorndike Test during thirty minutes of the following day, if possible.

"2. Give these tests during the regular English recitation period to individual groups. Do not combine the groups, please.

"3. Give them as teachers ordinarily give tests, not permitting pupils to give or receive aid. Do not hurry them.

"4. If influences, inside or outside the class-room, prevent the pupils from performing *normally*, send us a note with the tests describing the situation.

noted that all these vocabulary tests were given through the English classes so that the Latin pupils in these classes could not be led to assume a relationship between their study of Latin and the test of their knowledge of English vocabulary.

The Thorndike Test of Word Knowledge consists of one hundred words, based upon the frequency with which they occur among the ten thousand (10,000) most used words in the English language. It is, therefore, a test in general word knowledge.

The Carr Test consists of 50 fairly difficult words, half of which are words of Latin origin and the other half of non-Latin (Anglo-Saxon and Greek) origin. It is therefore in part a test in Latin derivatives. In discussing the results of the Carr Test the scores made in the two parts of the test will be treated separately.

Sample pages of both of these tests will be found in the appendix.

On the basis of the Intelligence Quotients derived from the results of the Terman Test the pupils were divided into two sets of pairs. The Intelligence Quotients were derived according to Terman's Manual of Directions, namely, by dividing the mental age in months by the chronological age in months, the mental age being obtained from a table of scores given on page 10 of the Manual. An example is here given:

SCORE ON TERMAN TEST	STANFORD-BINET MENTAL AGE	CHRONOLOGICAL AGE	INTELLIGENCE QUOTIENT
120	= 15 yrs. 1 mo. (181 months) ÷	13 yrs. 1 mo. (1.57 months) =	115 +

"5. Please report pupils in the experiment who are absent at the time of testing to the teacher in charge at your school in order that they may be given the test as soon as they return. Please do not let any pupil or group slip by the week of January 15th without taking these two tests.

"The Classical League of America, the professors of the Department of Education of the University supervising and directing the experiment, and the undersigned workers in the field, wish to thank you warmly for your hearty and valuable co-operation which has made the experiment possible and successful.

"A. A. HAMBLEN.
R. I. HASKELL."

Pupils of the "control" group were "paired" individually with pupils of the "experimental" group. For example, a pupil of the "control" class having an I. Q. of 115 was "paired" with a pupil of the experimental class having an identical or approximately identical I. Q. The I. Q. rarely deviated more than two or three points except in the cases of abnormally high or low I. Q. scores, where a slightly larger deviation was allowed.

In selecting these "pairs" many pupils had to be eliminated. This accounts for the fact that out of an original number of four hundred (400) students, only one hundred and fifty-four (154) pairs or three hundred and eight (308) pupils were used.[4]

Other methods of pairing were considered. For instance, it was suggested that the pairing be done on the basis of initial vocabulary scores. It was believed, however, that for purposes of this experiment capacity for growth was a more desirable basis for pairing than initial knowledge of words, and that this capacity for growth was best measured by a general intelligence test.

Pairing on the basis of class averages was another method considered. It was decided to use this class-comparison method wherever it was possible, as a check upon the I. Q. method. To repeat, this class comparison is a comparison of scholarship average of the control group with the scholarship average of the experimental group in each school. It was also felt that this method of pairing would possibly shed much light upon one phase of this investigation, a comparison of method used with results secured.[5]

A further question arose in the writer's mind as to whether the classes in one school could be compared with those in another (as, for example, a control class in school A against an experimental class in school B). As the schools draw their students

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[4] As mentioned above, 36 of these pairs were eliminated by changes in class assignments at the beginning of the second semester. Computations are, therefore, made only on the basis of the 118 pairs remaining throughout the two semesters.

[5] This form of comparison has been made use of in only three of the five schools participating. In one school the classes during the second term were divided into several sections, where the cases would be too few to give any weight to results, and in the other school, all of the "experimental" pupils had already been paired with "controls" (there being one class of "experimentals" and three of "controls"), and a class comparison would give the same results, the same teachers being used, as the I. Q. pairing.

from different sections of the city and consequently, from different strata of society, it was felt that neither the initial vocabulary score nor the class average offered a fair basis for pairing, because of the many factors (environment, heredity, etc.) which enter into them. A foreign population will, obviously, have a lower English vocabulary score than a population which is predominately of English extraction.

Therefore, all things considered, the I. Q. basis of individual pairing was held to be the best and most scientific basis on which to determine the original pairs.

Section 3. Middle and Final Tests

The same method of procedure as that described for the initial tests was followed in administering the middle tests in June, 1922, and the final tests in February, 1923, at the close of the experiment except that the Terman Test was not repeated and that a Latin Comprehension Test was added to the vocabulary tests in February, 1923. The three forms of the Carr Test used (Forms A, B and C) in successive testing periods, are considered of about the same difficulty for ninth-grade pupils.[6]

In regard to the Thorndike Tests, Forms A and B were considered of approximately equal difficulty, but Form C was considered more difficult than either of the above. The excess in difficulty was considered three points on the scale of 100 for the test.[7] Therefore, in computing the gain in the second term as indicated by the Thorndike Test, it must be borne in mind that the original score for Form C has been corrected by three points to conform with Dr. Thorndike's instructions.

The gain mentioned in this thesis is *word* gain, not percentage gain. Both word gain and percentage gain were considered. After careful consideration, the writer decided to use the former method for the sake both of accuracy in computing results and of simplicity in presenting these results.

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[6] This information was given the writer in a letter from Prof. W. L. Carr of Oberlin College, and a member of the Special Investigating Committee of the American Classical League. Professor Carr arrived at the above conclusion from computing medians of these three tests given on successive days to several thousand ninth-grade pupils.

[7] This information was given by letter from Dr. E. L. Thorndike of Columbia University under date of February 19, 1923.

Both word gain and percentage gain reward the pupil with the lower initial score. For example, a pupil who attains an initial score of 50 on the Thorndike Test, and a score of 75 on the second test will show a percentage gain of 50 per cent and a word gain of 25. On the other hand, both ways of howsing gains penalize the pupil with a high initial score, because the higher one goes in the scale toward a perfect score, the more difficult each step becomes. To increase one's score from 25 to 50 is easier than from 50 to 75, and an increase from 75 to 100 (a perfect score) is next to impossible, although percentage gain would be 100 per cent in the first case, 50 per cent in the second case, and 33 1-3 per cent in the third case.

Another means of showing gain is what will be called an "achievement gain." In computing "achievement gain" the difference between the initial score and a perfect score is taken as the denominator and the word gain as the numerator in arriving at the "gain." Thus, in the cases cited above, the pupil with an initial score of 25 and a second score of 50 made an achievement gain of 33 1-3 per cent, the pupil whose initial score was 50 and second score 75 achieved 50 per cent of his greatest possible gain, the third pupil with an initial score of 75 and a second of 100 achieved 100 per cent of his possible gain. Again, a pupil with an original score of 60 and a second score of 70, has an achievement gain of 25 per cent, while another pupil who scores 88 originally and 94 the second time, has an achievement gain of 50 per cent. Thus, it can readily be seen that this method of computing gain rewards the better pupil, and serves as a check upon the word gain.

At the close of the experiment in February, 1923, the Ullman-Kirby Latin Comprehension Test was given to all Latin pupils participating in the experiment in order to make a comparison between the progress made by the experimental and control classes in a knowledge of Latin itself. It was thought desirable to discover whether the special work on derivation in the experimental classes took up so much time that the classes suffered in their ability to handle a Latin sentence or paragraph. This Latin test, therefore, was used to measure the effect of the derivative work as carried on in the experimental classes as far as

progress in Latin was concerned. A sample page of the Ullman-Kirby test will be found in the appendix.

As was to be expected, a considerable number of pupils were lost from the various classes participating in the experiment, especially in the schools where promotion by subject is in force, both through organization difficulties and through failures. In the promotion by subject schools, many individual rosters had to be remade in order to allow some of the original pupils to go on with their classes. In some cases the attainment of the compulsory age limit of sixteen was the cause of losses. It was noted that more losses took place in the boys' schools than in the girls' schools. Withdrawals from school for the industries probably accounts for this difference and also the fact that girls generally make better language students than the boys.

Out of an original 154 pairs or 308 students, 118 pairs or 236 students were tested in February, 1923, at the close of the experiment. These pairs were divided among the schools by pairs as follows:

HIGH SCHOOL	NUMBER OF PAIRS	
	1ST SEMESTER	2D SEMESTER
A (Boys)	24	13
B (Girls)	31	23
C (Girls)	29	21
D (Boys)	32	29
E (Boys)	38	32
Total	154	118

Thus 77 per cent of the original pairs were retained throughout the second semester. The records of only the 118 pairs indicated in the second column above were used in the final computations, the records of the other 36 pairs made up for the first semester being discarded when these pairs were lost.

Section 4. Organization of Experiment

The teachers of the various experimental classes were called together at the beginning of the second semester in February, 1922, and acquainted with the specific methods to be employed. A general idea of the purpose of the experiment had already been given them in a circular letter sent to the Principals and Heads of Departments of the schools participating. A copy of this letter is reproduced in the appendix. At this meeting the value of various class-room devices was discussed and a type-written paper containing definite instructions was put in the hands of each of the teachers of the experimental classes. A copy of this outline will be found in the appendix.

Derivative lists made up from the lesson vocabularies in each of the four different beginners' books used were prepared for each teacher of an experimental class. Specimen pages of one of these derivative lists will be found in the appendix.

In these lists the derivatives were separated on the basis of whether they might be regarded as "fairly familiar" and "less familiar" to the pupils. This division was based largely upon the "word-count" reported in Thorndike's "Teacher's Word Book."[8] The English derivatives classified in the lists as "fairly familiar" were intended to serve as illustrative material, as a means of creating in the pupil the habit of associating related Latin and English words and as a means of providing the mental stimulus arising from unexpected discoveries regarding the meaning of common English words. The derivatives classified as "less familiar" were provided as practice material to be used in training the pupils to apply their knowledge of Latin

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[8] Thorndike's "Teacher's Word Book" (Bureau of Publications, Teachers' College) is an alphabetical list of 10,000 English words which were found to occur most frequently in a running count of over 4,500,000 words. The sources used included the Bible, English classics, school text-books, magazines, and periodicals. In all forty-one sources were used. A measure of the range and frequency of each word's occurrence is then given by a credit number following each word. "Range" answers the question "How widely is the word used?" A credit number of 49 or over means, for example, that the word is in the first 1000 in importance; a credit number of 29 to 48 places the word in the second 1000, and so on down the list until a credit number of 3 places the word in the last 810 words of the 10,000.

words to an understanding of English words derived from Latin.[9]

As a further aid to the teachers of experimental classes lists of commonly used prefixes and suffixes were prepared and distributed, in order to augment what had been done in the elementary grades. A sample of these lists will be found in the appendix.

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[9] Those responsible for the preparation of the derivative lists recognized the fact that the division into "fairly familiar" and "less familiar" was only approximate, and that many words which were quite familiar to certain members of a given class might be wholly unfamiliar to other members of the class. In answer to questions from some of the experimental teachers on this point the following statement was sent in the form of a letter: "As you know, the division of the derivatives into 'fairly familiar' and 'less familiar' is only approximate. It is based on Thorndike's list of the 10,000 most common words in English. You will probably find it desirable to omit many words from the list and to add others. The list is meant to be suggestive only and to save your time. I know from my own experience that one cannot always think of suitable derivatives on the spur of the moment, and moreover, that one may be quite uncertain of some of the examples which the pupils may offer. The list is, I believe, etymologically correct as far as it goes. I should welcome any corrections or suggestions for revision."

III

Measuring the Results of the Experiment

As was stated in the preceding chapter, second and third forms of the two vocabulary tests were given at the end of the first and second semesters following the giving of the initial tests. These tests were given to all pupils in both the control and the experimental groups and the average gains computed. The gains for the first semester were obtained by subtracting the average score made by each group at the end of the semester from the average score made by that group in the initial test taken at the beginning of the semester. Similarly, the gains for the second semester were obtained by subtracting the average score made at the end of the second semester from the average score made at the end of the first semester.

In the following tabulations the results are combined for the five schools. The average word gains made in the Carr Test for the first semester, the second semester, and the entire year by the control and experimental groups, respectively, are as follows:

	1st semester gains			2d semester gains			Year's gains		
	LAT.	N. L.	TOTAL	LAT.	N. L.	TOTAL	LAT.	N. L.	TOTAL
Control group	1.59	2.12	3.71	2.46	0.65	3.11	4.05	2.77	6.82
Experimental group	4.80	1.24	6.04	3.32	2.25	5.57	8.12	3.49	11.61
Superior gain of experimental group	3.21	−.88	2.33	0.86	1.60	2.46	4.07	0.72	4.79

In this tabulation the gains made in the 25 Latin-derived words (Latin), and in the 25 non-Latin words (non-Latin) are

given separately. The combined gains in the whole 50 words are also given.

The gain made by the experimental classes in Latin-derived words is three times as great in the first semester as that in the control classes, and the year's gain of the experimental classes is twice that of the control classes. The gain in non-Latin words is about equal for both groups, showing a superiority on the side of the experimental classes of slightly less than one word. This difference in gain in Latin as against non-Latin words was to be expected. The experimental classes were especially drilled on Latin derivation, while an equal opportunity (or lack of it) was given both classes on miscellaneously derived words, and it is but natural that about the same gain should be shown in non-Latin words for both groups. The small superior year gain of the experimental group in non-Latin words we may attribute to "habit and system control," for these pupils had been trained in the habit of derivation and of using their existing knowledge of words to "transfer" into the words not quite known or familiar. The year gain in the two classes of words combined resulted in a total gain of almost twice as many words for the experimental classes, and a little over once and a half in the first semester alone.

As was stated above the results of the five schools are combined in these tabulations. It should be explained, however, that the experimental group in one of these schools failed to carry out the work in derivation as planned. In this school the year's gains made by what was meant to be experimental group were practically the same as those made by the control group. The results from this school, therefore, reduced the average superior gains of the combined experimental group over the combined control group.

The average word gains made by the two groups in the Thorndike Test of 100 words are as follows:

	1ST SEMESTER GAINS	2D SEMESTER GAINS	YEAR'S GAIN
Control group	5.15	1.59	6.74
Experimental group	6.53	4.13	10.66
Superior gain of experimental group	1.38	2.54	3.92

For reasons mentioned before, namely, that there is not a constant number of Latin derived words in the Thorndike Tests, and the percentage of such words is generally under 33 1-3 per cent, we cannot expect the experimental classes to make as great a superior gain in the Thorndike Test as in the Carr Test. However, the first semester shows a superior gain by the experimental group of a little over 26 per cent (1.38 words), while for the year this superior gain is increased to 58 per cent (3.92 words).

It should be explained at this point that the average gain is slightly decreased for the combined experimental group by the fact that High School B showed a slight advantage on the control side, a condition which seems to have resulted (1) from the wide disparity of the initial Thorndike scores in the experimental add control classes (72.1 and 59.4, respectively, a difference of 12.7 words), and (2) from the fact that two pupils in the experimental classes showed a startling loss on the Thorndike Tests.[1]

The year gains in the Carr and Thorndike Tests show a very good correlation, especially for the control group, as may be seen from the following tabulation:

	CARR	THORNDIKE
Control group	6.82	6.74
Experimental group	11.61	10.66
Superior gain of experimental group	4.79	3.92

[1] A complete set of tables, showing gains or losses in each school, was kept by the writer and can be consulted by any one interested.

This is an outcome that might naturally be expected, because in the control Latin classes there was no incentive given the pupils to acquire an ability to derive English words from their Latin originals.[2]

The fact that pupils make slightly greater gains in the Carr Test of 50 words than in the Thorndike Test of 100 words is probably due to two causes. In the first place the opportunity given for measuring growth made by ninth-grade pupils is approximately the same in both tests. In the national survey the initial median score on the Carr Test for pupils entering the ninth grade was approximately 15, furnishing a leeway of approximately 35 unfamiliar words for measuring growth. The initial median score on the Thorndike Test for the same grade was approximately 60, furnishing a leeway of approximately 40 unfamiliar words for measuring growth. Furthermore, because of the larger percentage of Latin words incorporated in the Carr Tests, the class drilled upon deriving words from their Latin originals would naturally gain more in such a test than in a general vocabulary test such as Thorndike's.

Stating the superiority in another way, we find that in the Carr Tests the experimental group shows a superior year gain of 70 per cent and in the Thorndike Test a superior year gain of 58 per cent.

The second semester gains in the Carr and Thorndike Tests are as follows:

	CARR	THORNDIKE
Control group	3.11	1.59
Experimental group	5.57	4.13
Superior gain of experimental group	2.46	2.54

Thus, the experimental classes show in the second term a

[2] In the writer's opinion, as gathered from his experience as a reader of the College Entrance Examination books, this practice in derivation is generally deferred until the last year of high school, a practice usually derogatory to the pupil's chances on such examinations.

superior gain over the control classes in Carr and Thorndike Tests of 79 and 160 per cent, respectively.

If the superior gain of the experimental group is computed on the basis of achievement, a method which does not reward the pupil with a low initial score and penalize the pupil with a high initial score, the year gains for the Carr Test are as follows:

	PERCENTAGE OF POSSIBLE GAIN ACTUALLY ACHIEVED
Control group	9.6
Experimental group	20.6

Here again, a superiority is shown for the experimental group of more than 100 per cent. This form of computing gain, though it is arrived at by a different method, may be considered a check upon the comparisons made on the basis of word gain.

The average median scores of the two groups on the Ullman-Kirby Latin Comprehension Test taken at the close of the experiment are as follows:

	LATIN COMPREHENSION SCORE
Control group	9.0
Experimental group	9.6
Superiority of experimental group	0.6

In only one school (school E) did the median for the experimental class fall below that of the control class. The records from this school, on account of the fact that several pupils did not take the Latin Comprehension Test and that those tested took the test after they had had over a month's additional work in the third semester of their study of Latin, should be accepted

with reservations and not be valued too highly. We have, however, incorporated this median along with the others in the average. It is clear that the special work in derivation given throughout the year in the experimental classes aided rather than hindered their progress in Latin.

This concludes the study of the first two problems of this thesis: (1) To determine scientifically to what extent increase in English vocabulary is attained by Latin pupils who follow the prescribed course of study with little or no attention to derivative work, and (2) to determine scientifically what further increase, if any, is produced by the study of Latin derivation in the Latin class.

We may say in summing up the general results secured that the experimental classes did about twice as well as the control classes in the matter of gain in English vocabulary (the chief interest in this study), and at the same time did not lose but actually *gained* in Latin ability as measured by the Ullman-Kirby Test.

Distribution of Year Gains Between the First and Second Semesters

Thorndike[3] calls attention to the fact that ninth-grade Latin pupils appear to make the greater part of their year's superior gains in English vocabulary over those made by non-Latin pupils, as measured by the Thorndike Test of Word Knowledge, during the first semester and that the superior gains of Latin pupils during the second semester are somewhat smaller. Thus he finds that Latin pupils make a superior gain of 1.0 words during the first semester and a superior gain of 1.8 words during the entire year. While a comparison of the gains made by Latin and non-Latin pupils is not included in the present study, a comparison of the gains made by Latin pupils in the control and experimental Latin groups during the first semester with those made during the second semester should throw light upon the general question of distribution of gains suggested by Thorn-

[3] E. L. Thorndike, "The Influence of First-year Latin upon Range in English Vocabulary," *School and Society*, XVII (January 20, 1923), 84.

dike's results. The following table shows the distribution by semesters of the gain made by the control and experimental classes of the five schools combined as measured by the Carr Test:

	1ST SEMESTER GAINS	2D SEMESTER GAINS
Control group	3.71	3.11
Experimental group	6.04	5.57

The following table shows the distribution of gains as measured by the Thorndike Test:

	1ST SEMESTER GAINS	2D SEMESTER GAINS
Control group	5.15	1.59
Experimental group	6.53	4.13

It is clear from the above table that while there is an appreciable decrease in the amount of gain made during the second semester as compared with the first, the results in the experimental classes are quite consistent and indicate that on the basis of "achievement"[4] the gain made during the second semester is fully equal to, if not greater than, that made during the first semester.

The following table shows the gain made during the second semester by the control Latin classes in the individual schools, as measured by the Carr and Thorndike Tests:

[4] For definition of "achievement gain," see page 22.

		CARR TEST		THORNDIKE TEST
SCHOOL	LATIN	NON-LATIN	TOTAL	
A.....	0.92	1.46	2.38	2.46
B.....	3.95	−.05	3.90	2.43
C.....	1.93	−.99	0.94	0.94
D.....	3.46	1.66	5.12	0.48
E.....	1.90	1.07	2.97	2.16

It will be noticed that the gain measured by the Carr Test is more consistent than that measured by the Thorndike Test. School C, however, shows but a small year gain as measured by either test, and, in fact, an actual loss in non-Latin words during the second semester (though not an actual loss for the year, 2.23 words being gained during the year). Possibly, this circumstance can be accounted for by the fact that the periods in School C were only thirty minutes long.

It must be remembered that in the Carr Test 50 per cent of the words are of Latin origin and in the Thorndike Test a variable proportion, generally about 33 1-3 per cent, are of Latin origin.

The following table shows the second semester gains made by the experimental classes in the individual schools:

		CARR TEST		THORNDIKE TEST
SCHOOL	LATIN	NON-LATIN	TOTAL	
A.....	....	2.31	2.31	1.69
B.....	2.34	1.10	3.44	2.05
C.....	1.74	1.99	3.73	2.98
D.....	7.35	4.59	11.94	5.55
E.....	2.66	1.13	3.79	6.03

Here the gain in the second semester is more consistent than in the control classes. Attention is called to School A where there was no gain made during the second semester on Latin-derived words in the Carr Test. The gain in this school in Latin-derived words for the first semester was 8.15 and for the entire year was 8.15. The gain during the first semester was higher than in any of the other schools, and, therefore, was more difficult to keep up during the second semester. To show the opposite situation, attention may be called to School D, where the second semester gain in all words in the Carr Test was 11.94 words, a gain considerably greater than that made by any other school. Here, a lower first semester gain (4.65 on Latin-derived words, and 1.20 on non-Latin) was increased considerably during the second semester, resulting in a gain for the entire year of 7.35 words in the Latin and 4.59 in the non-Latin-derived words, or the very large total of 11.94.

Unfortunately, the experiment was interrupted during the period of the summer vacation, but there is no evidence that the "habit and system" control which the experimental classes had begun to form, in the deriving of English words from their Latin originals, was interfered with or hindered by the interruption; it seems to have "carried over" from June until September without serious loss.

IV

Evaluation of Methods in the Control Classes

It may be well here to restate the two remaining problems of this study. They are: (1) To indicate, as far as possible, what effect certain kinds of text-books commonly used in the ninth-grade Latin have in increasing the pupils' English vocabulary, and (2) to show the relative importance of teaching devices used in the experimental group in the attainment of this objective. It is clear that in an attempt to evaluate content and methods objective data and scientific measurements cannot be used exclusively; resort must often be made to opinion reinforced by data such as those previously discussed in this thesis. Also, the personality of the teachers, always an unmeasurable thing, must be largely considered. In fact, there are so many unmeasurable elements (reaction of class, personality of teacher, social and hereditary influences, ability of teacher to command a class, and so on), that the writer can only offer his *decided* opinions on many of the important points involved in this portion of the study.

Perhaps the best procedure in this latter part of the thesis will be to unite these two problems and attempt to evaluate content and methods by means of the summaries given below. The information given in these summaries was obtained through personal observation in the class-rooms, through conferences with teachers, through written reports from the teachers, and an analysis of the texts used.

By an examination of the above description of texts and methods used it is seen that there is but little deviation among the control classes, except in the text-book used. There are four different text-books used, two of which, Smith's Elementary Latin, and Collar and Daniell's First Year Latin (Jenkins revision), make a fair amount of provision for derivation.

The year gains made by the control classes in the five schools in the Latin-derived words of the Carr Test are, as follows:

Methods Used In the Control Classes

	SCHOOL A	SCHOOL B	SCHOOL C	SCHOOL D	SCHOOL E
Text used	Bennett.	Collar and Daniell.	Smith.	Mitchell.	Bennett.
Any provision for derivation in text?	No.	Yes.	Yes.	A little.	No.
Completed or not?	Yes.	Seven-eighths.	Yes.	Yes.	Yes.
Was derivation avoided?	Yes, presumably.*	Yes.	Yes (no time—only 30-minute periods.)	Yes.	Yes, with difficulty.†
Discussion of importance of Latin element in English	Occasionally.*	No.	No.	No.	No.

* It should be recalled that no control teacher was interfered with or asked to teach Latin other than in his usual way. In fact, in School A the control teacher was not informed that his class was included in the experiment.

† The teacher of this class is enthusiastic along the lines of derivation and was only reconciled to avoiding derivation as much as possible by being assured he would be given all the vocabulary lists based on this text-book so that he could use them in his other classes. It was unfortunate for the investigation that he could not have been used in the experimental class, but as explained above, we took the teachers assigned to us by the heads of departments or principals. Attention should be directed back to the results produced in this School E, which showed that this control class made a greater gain than the class which was assigned as an experimental class, but did not carry out the program planned.

SCHOOL	TEXT USED	PROVISION FOR DERIVATION	YEAR'S GAINS ON LATIN WORDS[1]
C.....	Smith.	Fair amount.	5.88
B.....	Collar and Daniell.	Fair amount.	5.19
D.....	Mitchell.	A little.	3.55
A.....	Bennett.	None.	3.23
E.....	Bennett.	None.	3.09

The gain on Latin-derived words is used in the above summary because for the purpose of this study the varying emphasis upon the derivation of English words from Latin is the one important difference in text-books used. Also the Carr Test instead of the Thorndike Test is used as a basis of comparison because of the constant proportion (50 per cent) of Latin words used in the Carr Test, and because of the fact that the scores of Latin-derived words are separately recorded.

The results given above show quite clearly that classes using a text-book in which some provision is made for derivation, all other factors being equal, will show greater gains in a knowledge of English words derived from Latin.

The two schools using a text in which there is no provision for derivation occupy the last two places in the list arranged in order of words gained.[2]

Therefore, we may say in summing up our examination of the effect produced in the control classes where little or no attention is paid to derivation that *the result produced* in regard to an increased knowledge of Latin-derived English words

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[1] The gains reported in this table are on the 25 Latin-derived words in the Carr test.

[2] It is not our purpose to go into an analysis of the general content of the books used. Most readers of this thesis are, no doubt, conversant with the content of material in the different books named and the primary aim of this study is to evaluate methods not content of material used. This study comes under the heading of "Methods," as is seen from the chart outlining the activities of the American Classical League Investigation printed on pages 6 and 7.

varies directly as the amount of provision for derivative work varies in text-books used. In other words, other factors being equal, a class using a text-book in which there is a fair amount of derivative material will outstrip in knowledge of English vocabulary a class using a text in which little or no such provision is made.

V

Evaluation of Methods Used in the Experimental Classes

In undertaking to show the relative importance and comparative effectiveness of the various methods and teaching devices used in the experimental classes, the same procedure will be employed as in the preceding chapter. An analysis of methods used in the experimental classes in the five schools is presented in the following outline:

From the foregoing outline, it seems clear that there was general uniformity in regard to methods used, except in School E, where, as was previously stated, the program for the experimental class was not carried out. The writer received no reply to his final requests for information on methods used in this class and therefore has had to insert "not reported" in regard to many of the items.

The use of a derivative note-book divided into five columns along lines suggested in the derivative lists, was undertaken in all five schools, but was soon dropped in School E. A sample of the note-book used in School A and used as a model in the preliminary meeting of the experimental teachers at the inauguration of the experiment, is here given:

(Words to be taken from the derivative lists.)

Latin word stem.	Familiar derivatives.	Less familiar derivatives.	Meaning.	Sentence illustrating use.

Note: Meaning and illustrative use are required for only unfamiliar but important words.

In the use of the note-book and the word-lists provided several of the teachers followed their own judgment, putting some new words into the lists and omitting some which were considered unimportant. The writer was very well satisfied with the procedure followed, especially in School B, where the work

METHODS USED IN THE EXPERIMENTAL CLASSES

	SCHOOL A	SCHOOL B	SCHOOL C*	SCHOOL D	SCHOOL E
Text-book used	Bennett.	Smith, Collar and Daniell.	Smith.	Mitchell.	Bennett.
Completed or not	Yes.	Seven-eighths.	Yes.	Yes.	Yes.
Any provision therein for derivation	None.	Fair amount.	Fair amount.	Little.	None.
Discussion of importance of Latin element in English	Yes.	Yes.	Yes.	Yes.	Not reported.
Were derivative lists used and completed?	Yes.	Yes.	Yes.	Yes.	Occasionally, not completed.
Was derivative note-book used and marked?	Yes, marked monthly.	Yes, except familiar words were omitted at end.	Yes, but not marked.	Yes.	Started but dropped
Was definite work in English derivatives included in assignments during both terms?	Yes, both terms.	Yes, both terms.	Yes, but not as much in second term.*	Yes, both terms.	No.
Did you make a distinction between English derivatives already familiar and unfamiliar?	Yes.	Yes.	Yes.	Yes.	Not reported.
Did you make a distinction between direct and indirect derivatives?	Yes.	Yes.	Yes.	Yes.	Not reported.
Did you have pupils learn meanings of common Latin prefixes and suffixes?	Yes.	Yes.	Yes.	Yes.	No.
Did you have pupils learn Latin phrases, abbreviations, mottoes, etc., occurring in English?	Reported upon but not learned.	Used, but not learned.	None except those in vocabulary lists.	Yes, those in vocabulary lists and others given.	Not reported.
Did you have pupils bring in lists of technical and semi-technical derivatives found in text-books in other subjects?	Not assigned but encouraged.	Not assigned but urged to.	Urged to.	Urged to.	Not reported.

Did you have pupils bring in newspaper clippings, advertisements, etc., containing Latin elements?	Not assigned but encouraged.	Urged to.	No.	Yes.	Not reported.
Did you include derivative questions in tests?	Yes.	Yes.	No.	No.	No.
What proportion of time did you give to derivation?	Approximately one-fifth.	At least one-fifth.	One-fifth to one-tenth.	One-third to one-fifth.	Not reported.
Did pupils show interest in the work in derivation?	Very much.	Always interested and lively discussion.	Yes.	Yes.	Not reported.

* School C had an actual teaching period of but thirty (30) minutes and was forced to eliminate some of the methods and devices suggested. The experimental teacher was extremely anxious to complete the prescribed work in Latin within the year's time and curtailed some of the time that was to be given to derivation, especially toward the end of the year.

† One teacher in School D gave one-third (1-3) of his class time to derivation but the other teachers gave about one-fifth (1-5).

was done in a very energetic fashion. In the opinion of the writer the use of the note-book was of prime importance in the procedure, and it was used regularly except in School E. In Schools A and B, this note-book was periodically called for and marked. The students soon learned to appreciate the fact that this work was to be a definite part of the course.

The derivative lists, which supplied in convenient form material for the note-books, were used in these same schools, and seem to have been employed well. In School C as time pressed and it was felt that the text-book *must* be completed in the time allotted, the teacher omitted the familiar words in the derivative lists and the note-book.

Again, definite work in English derivatives was regularly included in the assignments during both terms, though, as has been said, school C, having only a thirty-minute period, had to curtail this work somewhat during the second semester for lack of time. The regular and definite assignment of derivative work was continued by the four schools, and the pupils, no doubt, soon learned that they were to be held responsible for this work as a definite part of their course in Latin.

The same four schools reported affirmatively on the following questions: (1) Did you make a distinction between English derivatives already familiar and those unfamiliar? (2) Did you make a distinction between direct and indirect derivatives? (3) Did you have pupils learn meanings of common Latin prefixes and suffixes? The writer was especially anxious to have this latter suggestion followed out and accordingly, early in the first term, sent lists of important Latin prefixes and suffixes, which he urged should be thoroughly mastered.

Only one school (School D) reported that the teachers had required the pupils to learn Latin phrases, abbreviations, mottoes, etc., occurring in the English usage. The other schools reported that the teachers had required the pupils to learn only the abbreviations, phrases, etc., found in the vocabulary lists submitted and that the others were merely reported upon by the pupils as found in their reading.

All the schools, except School E, urged their pupils to bring in lists of technical and semi-technical derivatives found in

text-books of other subjects, but did not require this work to be done.

Three out of the five schools reported that the teachers had the pupils bring in newspaper clippings, advertisements, etc., containing Latin elements. This must have been an interesting activity for the pupils especially interested and, no doubt, a good deal of benefit was derived therefrom. School C had no time for employing this device on account of its short class period.

Two of the schools (Schools A and B) incorporated questions on derivation in the regular tests, thus making the pupils realize that derivation was an important part of the work and not to be considered simply as a temporary "hobby."

At the outset of the experiment, the writer requested that about one-fifth of the class time be given over to derivation work either in each day's recitations, or in the aggregate. In only one case (one class in School D) was this proportion of time increased. In most of the schools the time asked for was given to this work. No report on this matter was received from School E, but we may assume that some time was occasionally devoted to derivation in the first term, for at the end of the first term the writer received the following report from the teacher of the class which had been designated as an experimental class: "I have simply given my experimental group lists of English derivatives from Latin and French (through Latin), omitting unusual and absurdly obvious words." Again at the close of the experiment in February, 1923, the following report was received from the same teacher: "My experimental section has been in such condition all the term that I could not in simple justice to the boys, take time from necessary drill, for work on derivatives. If this renders the work (here) nugatory, I am sorry, but it could not, in my judgment, be prevented."

The average year gains made by the experimental classes in the five schools are shown in the following table:

SCHOOL	TEXT USED	INITIAL SCORE ON LATIN WORDS[1]	FINAL SCORE ON LATIN WORDS[1]	YEAR GAINS ON LATIN WORDS[1]
D.....	Mitchell.	8.6	20.6	12.
B.....	Smith: Collar & Daniell.	9.4	18.8	9.4
C.....	Smith.	11.2	19.4	8.2
A.....	Bennett.	10.7	18.8	8.1
E.....	Bennett.	8.3	12.	3.7

Note that here, in the experimental classes as well as in the control, the schools using Bennett, the text in which there is no provision for derivation, occupy the last two places. It will also be noticed that the order of the schools has been slightly changed, Schools D and C interchanging positions, but that otherwise, the order is the same, when the schools are arranged on the basis of superior year gains.

The year gains on Latin-derived words are used in the above table because we are here concerned with growth in a knowledge of English words derived from Latin as a basis for evaluating text-books and methods used in attaining this result. Also the Carr Test is used instead of the Thorndike as a basis of comparison because of the constant proportion (50 per cent) of Latin words used in the Carr Test.

In analyzing the methods used in the five schools, we did not discover as much difference in methods used as we had expected to find. We found that, with the exception of School E, all of the experimental teachers generally used the methods or devices suggested at the outset of the experiment, namely, a pupil's note-book, and the derivative lists supplied, and that these two devices were used *regularly* and the other devices suggested were used *occasionally*.

The proportion of class time given to derivation work is an important item in this discussion. The writer asked for one-

[1] The scores in this table are those made on the 25 Latin-derived words in the Carr test.

fifth of the total class time. School D, which stands at the head of the list in words gained, gave on the average a greater proportion of time than was asked for. The four experimental teachers in this school reported, respectively, one-third, one-fourth, one-fifth, and "ten minutes a day" (about two-ninths), thus averaging about one-fourth of the total class time. Although the difference between one-fifth and one-fourth of a period is only a minute or two a day, this difference totals rather high in the course of a year, and this time element may easily account for the superior gains made by School D. School C, it must be remembered, had only a thirty-minute period, and the teacher felt unable to give all the time to derivation which had been asked for.

In regard to the text-books used in the experimental classes, there are some definite conclusions to be drawn. The two schools using Bennett's First Year Latin[4] are found at the bottom of the list of schools arranged in order on the basis of year gains made in Latin-derived words. It may be recalled that the experimental class in School E using Bennett made only a very slight superior gain in Latin words over the control class in the same school using the same book. Only 3.72 words were gained in the experimental class as against 3.09 in the control class, that is a superior gain of 0.63 of a word. Therefore, we see that this class using a book in which no attention is given to derivation, and in which *little* attention is paid to derivation by the teacher, gained practically the same as the control class using the same book. However, the experimental classes in School A using this same book but with an enthusiastic interest in derivation gained over 100 per cent more than the control classes in the same school using the same book (8.15 words as against 3.72 words).

We cannot draw so definite a conclusion concerning the text-books used in the other three schools. The element of the methods used by the teachers enters largely into the question. However, we may say that School D with a book containing

[4] It is to be recalled that in this book *no help whatever* is given the pupil in derivation—there is no mention of a Latin-derived English word nor any mention of the importance of the Latin element in English.

little help on derivation but with much time given in class to definite work in derivatives shows a gain in words superior to Schools B and C where text-books are used containing a fair amount of help in derivation. That is, School D shows a gain of 12 words as compared with 9.4 and 8.2 for Schools B and D respectively. The difference in initial score in Latin words in these schools, no doubt, makes some difference in the amount of the final gains. The initial scores on Latin words in these three schools were as follows:

SCHOOL	INITIAL SCORE
D	8.6
B	9.4
C	11.2

This initial difference, while less than one word between School B and School D, is fairly large between School D and School C, about two and a half words. It was thus relatively more difficult for School C to make a large gain.[5] Inasmuch as it is impossible to say whether there was relatively more interest and enthusiasm shown in any one of the three schools above, we shall assume that these elements were present in about the same measure in all three schools and we are, therefore, led to conclude that the relatively greater amount of time given to derivation in School D plus a lower initial score on Latin words accounts largely for its superior year gain. When the three schools are compared on the basis of final scores on Latin-derived words, it is seen that less than two words separates the schools thus:

SCHOOL	INITIAL SCORE ON LATIN WORDS	FINAL SCORE ON LATIN WORDS
D	8.6	20.6
C	11.2	19.4
B	9.4	18.8

[5] Also School C has a thirty minute class period. Therefore, a fifth of this period is 50 per cent less than a fifth of a regular forty-five-minute period (six minutes against nine).

The interest of the pupils, which was reported upon favorably in the four schools, must have played a very important part in the results obtained. No better evidence of this fact can be given than a comparison of the results produced in School A, the fourth in the superior list, and School E, where little interest was taken in derivation by the teacher and consequently by the pupil. This difference in results produced is shown in the following table:

	SCHOOL[6]	INITIAL SCORE ON LATIN WORDS	FINAL SCORE ON LATIN WORDS	YEAR GAIN ON LATIN WORDS
	A	10.7	18.8	8.1
	E	8.3	12.0	3.7
Superiority of A over E	....	2.4	6.8	4.4
Percentage of superiority	....	29%	57%	119%

The difference shown above is between the fourth and fifth schools in the list arranged in order on the basis of year gains. When School E is compared with School D, the leader in the list on the basis of words gained, the difference is still greater, thus:

	SCHOOL[6]	INITIAL SCORE ON LATIN WORDS	FINAL SCORE ON LATIN WORDS	YEAR GAIN ON LATIN WORDS
	D	8.6	20.6	12.0
	E	8.3	12.0	3.7
Superiority of D over E	....	0.3	8.6	8.3
Percentage of superiority	....	4%	72%	224%

[6] The "experimental" class in School E may here be regarded for all practical purposes as a "control" class. See the writer's definition of the "control group" on page 0.

Therefore, we seem to be justified in attributing the growth in knowledge of Latin-derived words shown to have been made in Schools A, B, C, and D to a systematic use of the derivative lists and other methods described above. This conclusion is based on a comparison of the gains made by the experimental classes as against the control classes, and the comparatively small gains made in the "experimental" class in School E, where little attention was paid to derivation in the first semester and none in the second and t is, therefore, was, for the purposes of this experiment, practically a control class.

In summing up the discussion of our fourth problem, namely; to show the relative importance and comparative effectiveness of the teaching devices used in the experimental classes for the attainment of an increased knowledge of English words derived from Latin originals learned in the Latin classes, we may say that pupils devoting approximately one-fifth of the total class time to systematic work in derivation with the regular aid of note-books and derivative lists incorporated preferably in text-books used and with the occasional use of other devices to aid and give interest to the work, may be expected to *gain about three times as many Latin-derived words as Latin pupils not so taught.*

VI

Conclusions

In this chapter, conclusions drawn from the evidence bearing upon the four problems as stated in Chapter II will be given in order.

1. To determine scientifically to what extent an increased knowledge of English words especially those derived from Latin is attained by pupils who study Latin following the usual prescribed course with little or no attention to derivation.[1]

The year gains made by the control group as measured by the Carr English Vocabulary Test and the Thorndike Test of Word Knowledge were:

CARR TEST		THORNDIKE TEST	
LATIN WORDS	NON-LATIN WORDS	TOTAL	
4.05	2.77	6.82	6.74

These results show a year gain of about seven words when progress is measured by either of these tests and a gain of about four words of Latin origin as this gain is measured by the Carr Test.

2. To determine scientifically what further increase in English vocabulary, if any, is produced by the study of Latin derivation in the Latin class.

The year gains made by the experimental group as measured by these same two tests were:

[1] See footnote on page 12.

CARR TEST		THORNDIKE TEST	
LATIN WORDS	NON-LATIN WORDS	TOTAL	
8.12	3.49	11.61	10.66

These results show a year gain of about eleven words when progress is measured by either of these tests and a gain of about eight words of Latin origin when this gain is measured by the Carr Test.

A comparison of the year gains made by the control group with those made by the experimental group as these gains are measured by the Carr Test shows that the superior gains of the experimental group over the control group are almost entirely due to gains made in Latin-derived words, and that on words of this type the average gain made by the experimental group is about twice that made by the control group. Furthermore, the school with the most favorable conditions of text-book and methods of instruction made a year gain on Latin-derived words four times as great as that made by the school with the least favorable conditions of text-book and methods, as is shown in the following table:

	YEAR GAINS IN LATIN WORDS OF CARR TEST
Experimental Class in School D	12.00
Control Class in School E	3.09

We may, therefore, conclude that the normal growth in English vocabulary may be greatly increased by the study of derivation in the Latin class, and that the increase in Latin-

derived words may be increased two- three- or four-fold, depending on the text-book and teaching methods used.

3. To indicate what effect certain kinds of text-books commonly used in ninth-grade Latin have on the attainment of an increased knowledge of English words.

It has been made clear in the preceding pages that this increase, if any, will be found largely in Latin-derived words. It is also clear that the effect of the text-book can be judged more accurately from gains made in the control classes, in which no effort was made by the teacher to supplement the work in derivation. The following items are repeated from a table given in Chapter IV:

SCHOOL	PROVISION MADE IN TEXT-BOOK FOR DERIVATION	YEAR GAIN IN LATIN WORDS
C	Fair amount.	5.88
B	Fair amount.	5.19
D	A little.	3.55
A	None.	3.23
E	None.	3.09

From the facts here presented we may conclude that, other conditions being equal and no instruction in derivation being given by the teacher, pupils using a text-book which makes satisfactory provision for work in derivation will make a gain in a knowledge of Latin-derived words approximately twice as great as pupils using a text-book making no such provision.

4. To show the relative importance and comparative effectiveness of various teaching devices in attaining an increased knowledge of English words.

The evidence on this point is less conclusive than on any of the points discussed above. In the opinion of the writer there is not much evidence furnished by the experiment on which to base an evaluation of the various teaching devices which were

reported as "occasionally used." Also, as has already pointed out, there was not much variety in the methods and devices which were reported as "regularly used" except in School E where little attention was given to any of the methods or devices suggested.

The five most important elements entering into the question of methods of teaching English derivatives in connection with the study of Latin are, in the opinion of the writer: (1) The Latin text-book; (2) the teacher's derivative list; (3) the pupil's note-book; (4) the proportion of class time devoted to such work, and (5) the pupil's interest in the work.

The first of these elements has already been discussed under the preceding topic, where it was shown that the control classes in Schools A and E using a text-book which makes no provision whatever for work in derivation made the smallest year gains in Latin-derived words. The following facts taken from a table given in Chapter V show that the experimental classes in these same two schools also made the smallest year gains in Latin-derived words of any of the experimental classes:

SCHOOL	PROVISION IN TEXT FOR DERIVATION	YEAR'S GAINS ON LATIN WORDS
D	A little.	12.0
B	Fair amount.	9.4
C	Fair amount.	8.2
A	None.	8.1
E	None.	3.7

The evidence seems to be conclusive that the use of the teacher's derivative lists and the pupil's note-book are very important items in the successful teaching of English derivatives in connection with the study of Latin. The first four schools in the above table which are well grouped made regular use of these methods while the fifth school, which shows an abrupt drop in gains, made little or no use of these methods.

As to the time element, School D, which shows the greatest

year gains, gave a larger proportion of time to the teaching of derivatives than any other school.[2] This fact would seem to account in part for the position of this school at the head of the list. School C, as previously stated, had a class period of only thirty minutes, and was unable to give the full amount of time asked. School E, which is at the bottom of the list, gave practically no time to work in derivation.

The first four schools in the list all report that the pupils showed interest and enthusiasm in the work. It is difficult, if not impossible, to evaluate devices for stimulating interest, but certainly among good methods for securing this result should be listed the collection of newspaper clippings, posters, etc., containing illustrations of the Latin element in English, the arranging of exhibits of this material, and other devices such as those given in Appendix F.

To sum up, the results of this study seem to show that a pupil studying one year of Latin may be expected to make a small gain in a knowledge of Latin-derived words, even without the help of text-book or teacher, although it cannot be stated to what extent this gain represents the normal growth in English vocabulary made by the average ninth-grade pupil, and to what extent it is the result of automatic transfer; that this gain can be greatly increased through the use of a suitable text-book and of appropriate methods of teaching; that a pupil's note-book and a teacher's derivative list are important aids in the teaching of derivatives; that approximately one-fifth of the total class time may profitably be given to work in derivation; and that the giving of time and attention to derivation increases rather than hinders progress in ability to comprehend Latin.

---

[2] Although the experimental class in School D devoted more time to work in derivation than was asked for, nevertheless this class surpassed the control class in the test on Latin comprehension, having a median score of 10 as against a median score of 9 made by the control class which had devoted its full class time to the learning of Latin.

APPENDICES

To show the tests, letters and material used in the foregoing thesis, the following appendices are submitted:

A. Terman Group Test of Mental Ability—used in computing I. Q. of pupils to be paired. Chapter II, Section 2.

B. Thorndike Test of Word Knowledge—used to measure progress in general vocabulary. Chapter II, Section 2.

C. Carr's English Vocabulary Test—to measure progress in vocabulary with a more definite amount of Latin-derived words. Chapter II, Section 2.

D. Ullman Kirby Latin Comprehension Test—to measure real Latin ability, *per se*, in forms syntax and translation—given at end of experiment. Chapter II, Section 3.

E. Memorandum or Letter of Introduction—sent to all Principals and Heads of departments of participating schools—to explain experiment. Chapter II, Section 4.

F. List of Devices—to be used in the experimental classes. Chapter II, Section 4.

G. Derivative List—used in experimental classes to supplement devices (above). Chapter II, Section 4.

H. A list of commonly used prefixes and suffixes.

THORNDIKE TEST OF WORD KNOWLEDGE

FORM B

Published by
TEACHERS COLLEGE, COLUMBIA UNIVERSITY
NEW YORK CITY
Copyright, 1921, by Teachers College

Write your name here plainly.

.....

If the examiner asks you to do so, write your age, grade, school and city.

Age.....Grade.....School.....City or Town.....

Look at the first word in line 1. Find the other word in the line which means the same or most nearly the same. Draw a line under it. Do the same in lines 2, 3, 4, etc. Lines *A*, *B*, *C* and *D* show the way to do it. Do all the lines that you can.

A. beast	afraid — words — large — animal — bird	
B. baby	cradle — mother — little child — youth — girl	
C. raise	lift up — drag — sun — bread — deluge —	
D. blind	man — cannot see — game — unhappy — eyes	

Begin:

1. build	barge — gain — finish — make — escape	1.
2. band	drum — company — leather — tie up — gate	2.
3. direct	short — glad — straight — extend — form	3.
4. double	false — fourfold — gray — twice — entire	4.
5. avoid	greedy — keep away from — employ — void — erect	5.
6. balance	dance — make equal — weight — government — labor	6.
7. awake	funeral — knowing — due — wake up — grade	7.
8. beneath	undignified — heather — donate — hence — below	8.
9. check	error — stop — flash — rude — haste	9.
10. collect	seize — earn — arrest — gather — university	10.
11. daily	final — everyday — honest — milk — always	11.
12. afterward	after that — finally — behind — from now on — easily	12.
13. ache	wound — create — decline — a tool — hurt	13.
14. ascend	devote — fly — perfume — go up — dissolve	14.
15. backward	downwards — after — toward the rear — defence — arrears	15.
16. beloved	gracious — dear — best — possession — dumb	16.
17. bond	liberty — candy — tie — credit — division	17.
18. colt	a young goat — deer — a young cow — fowl — a young horse	18.
19. convenient	delicate — polite — trouble-saving — delightful — conveyance	19.
20. cord	dispute — harmony — famine — firewood — string	20.

Turn to line 21 on the next page.

21. thrive	strive — save — decrease — curb — flourish	21.
22. arrest	devour — restful — decree — stop — artful	22.
23. bacon	lighthouse — cow — cuckoo — meat— gall	23.
24. bonnet	errand — a small boat — fringe — pretty — cap	24.
25. builder	employee — hamlet — maker — fund — swindler	25.
26. cod	fish — small bed — fir — a bird — errand	26.
27. confine	purify — extra — endeavour — limit — splendid	27.
28. valiant	brave — gorgeous — valid — extraordinary — precious	28.
29. advertise	detain — explore — make known — adverse — newspaper	29.
30. annoy	noise — crumble — disturb — extract — anger	30.
31. aspect	appearance — examine — defect — honor — devotion	31.
32. ransom	congregation — cab — price — rent — disposition	32.
33. boon	monkey — a bird — ferry — cupboard — favor	33.
34. bug	insect — a vehicle — fiber — abuse — din	34.
35. cherish	dedicate — happy — covet — hold dear — marry	35.

36. clove	clover — a spice — fetter — dipper — costume	36.
37. abominable	ingenious — guilty — able to hate — intense — horrid	37.
38. bald	aged — bare — shout — gossip — gasp	38.
39. cypress	wine-press — gorge — funeral — a tree — garrison	39.
40. detect	blemish — untie — invert — gossip — discover	40.
41. absorb	ridiculous — extol — extinguish — soak up — cotton	41.
42. avarice	ordinary — various — empress — frailty — greed	42.
43. brutal	savage — dull — heavy — fraternal — fickle	43.
44. cologne	crepe — perfume — constable — pillar — odor	44.
45. precinct	district — succinct — custody — precise — cowl	45.
46. blanch	become white — giddy — divert — vacant — deplore	46.
47. chap	book — fellow — inexpensive — gash — crate	47.
48. charitable	degenerate — organization — expedient — cheerful — forgiving	48.
49. ambush	dearth — thicket — destination — fight — trap	49.
50. ardent	hot — cute — indent — clumsy — brave	50.
51. bearing	a large ring — behavior — cub — commendation — destination	51.
52. blink	cull — stammer — wink — dark — decide	52.
53. arbitrary	negotiate — unreasonable — godly — treaty — formidable	53.
54. audible	festive — easy — audit — heard — downy	54.
55. blissful	sacred — glassy — ignorant — eloquent — happy	55.
56. retrace	trail — disown — go over — take back — emigrate	56.
57. scribble	disfigure — scratch — write — infer —gossip	57.
58. credulous	ready to believe — diverse — oily — infamous — reliable	58.
59. custard	dastard — cowardly — goblin — dross — pudding	59.
60. decoy	disguise — flaunt — denote — lure — deck	60.

Turn to line 61 on the next page.

61. alumni	graduates — equipage — aluminium — decades — alibi	61.
62. scurry	squirm — dispel — scamper — flay — a disease	62.
63. sachet	epistle — cuff — flask — bag — buckle	63.
64. pinnace	a boat — doublet — pinnacle — hold fast — forfeiture	64.
65. canon	artillery — domain — rule — flounce — diplomat	65.
66. reprobate	sinner — dowry — probat on — lawyer — estrange	66.
67. clog	satiate — timber — detach — obstruct — drizzle	67.
68. cloudless	decisive — clear — without noise — shower — faultless	68.
69. audacious	audible — impervious — bold — influential — successful	69.
70. characterize	describe — strengthen — wade — improve — forecast	70.
71. clemency	cement — storm — kindness — fortification — emblem	71.
72. cruller	jockey — beggar — faucet — cake — small boat	72.
73. docile	joyless — medicine — frisky — house — yielding	73.
74. downright	beneath — direct — at the bottom — inoffensive — habitual	74.
75. dissipate	scatter — taste — drink — intervene — exasperate	75.
76. dissembler	insurgent — forerunner — foreigner — dissenter — hypocrite	76.
77. aboriginal	not original — abominable — malignant — native — incalculable	77.
78. solicitor	lawyer — chieftain — watchmen — maggot — constable	78.
79. allusion	aria — illusion — eulogy — dream — reference	79.
80. beneficial	benevolent — betrothal — helpful — celebration — fulsome	80.

81. chirrup	aspen — joyful — capsize — chirp — incite	81.
82. demure	modest — prevalent — unripe — leisurely — object	82.
83. eligible	demountable — legible — suitable — chivalrous — despotic	83.
84. finite	aspirant — with limits — redundant — dainty — black marble	84.
85. gainsay	persuade — beshrew — deny — profit — imprint	85.
86. haggard	lingering — witch — desultory — prim — gaunt	86.
87. accessible	indefatigable — successful — limpid — can be reached — liable	87.
88. accouter	accost — encounter — equip — delve — impoverish	88.
89. belligerent	warlike — beautifying — oblivious — righteous — pellucid	89.
90. avaricious	ambitious — sedu ous — corrupt — greedy — humid	90.
91. dingy	afraid — hostelry — small bell — midget — dirty	91.
92. eclogue	obituary — a poem — carousal — epigram — portrait	92.
93. forerun	precede — allot — beat — belabor — fester	93.
94. gala	glint — lethargy — festive — galley — high wind	94.
95. hogshead	boar — cask — glutton — equipoise — pedagog	95.
96. ignominious	seductive — not guilty — incontestable — ignorant — shameful	96.
97. kiln	furnace — midge — cover — pot — minx	97.
98. maze	pennant — tangle — segment — wizard — badge of power	98.
99. nautical	impudent — trivial — naval — cavernous — glum	99.
100. palaver	chatter — catechize — erudition — procession — parasol	100.

CARR'S ENGLISH VOCABULARY TEST

Form A

Information to be Supplied by the Pupil

Do Not Turn to Page 2 Until You Are Told To Do So

1. Write your name here..... Date.....
   First name Last name
2. Write the name of your city and state here.....
3. Write the name of your school here.....
4. What was your age on your last birthday?.....
5. If you are a boy, write "boy" here.... If a girl, write "girl" here....
6. In what grade are you? (7th, 8th, 9th, 10th, 11th, 12th).....
7. Are you now studying Latin?..... If so, how long have you studied Latin?..... If not, have you previously studied Latin?.....
8. Are you now studying French?..... If so, how long have you studied French?..... If not, have you previously studied French?.....
9. Are you now studying Spanish?..... If so, how long have you studied Spanish?..... If not, have you previously studied Spanish?.....

10. Are you now studying German?..... If so, how long have you studied German?..... If not, have you previously studied German?.....

To the Teacher: Please see that the information asked for above is supplied by each pupil.

Instructions to the Pupil

To the Teacher: Please read these instructions aloud with the pupils and make sure that all thoroughly understand them.

Read the following sample sentence, and then look at the five words or phrases printed just beneath it:

Sample sentence: This was perhaps the most important *decade* in our history.
battle, event, ten years, treaty, fifty years.

Now try to decide which of these words or phrases most nearly explains the meaning of the word printed in italics in the sample sentence. Draw a line under that word or phrase.

To the Teacher: Allow the pupils about half a minute to do this.

In the above sample the line should be drawn under "TEN YEARS," because the word *decade* means "a period of ten years." Now when you are told to do so, turn the page and in this same way try to indicate the meaning of the italicized word in each of the sentences found on pages 2, 3 and 4; that is, choose from the five words or phrases printed beneath each sentence the one which you think most nearly explains the meaning of the word printed in italics, and draw a line under it. When you have done all you can, hand in your paper. You will be allowed 20 minutes, if you wish to use that much time.

To the Teacher: When all seem to understand what they are to do, say, "Ready, turn the page begin!" Note the time, and at the end of 20 minutes take up all papers not already handed in.

Words correct: Even.....Odd.....Total.....

1. The man was left in *fetters*.
   power, ignorance, bonds, exile, rags.
2. The *novelty* of the situation appealed to him.
   romance, strangeness, beauty, fun, quietness.
3. You will find no *sluggard* here.
   fist-fighter, sail boat, coward, lazy person, worm.
4. He realizes the *gravity* of his position.
   seriousness, humor, uncertainty, advantage, responsibility.
5. I have just heard of your *bereavement*.
   achievement, difficulty, loss by death, appointment to office, accident.
6. It is expected that the legislature will soon *convene*.
   meet, organize, vote, approve, adjourn.

7. I feel sure that she will *rue* the day.
   forget, regret, remember, appoint, change.
8. *Filial* love alone kept the girl in that little village.
   true, home, parental, daughterly, sisterly.
9. I never saw her so *blithe* as on that day.
   quiet, gay, sad, angry, beautiful.
10. His *fidelity* in this position won him a promotion.
    courtesy, accuracy, faithfulness, intelligence, success.
11. The warrior lost his *buckler* in the fight.
    breastplate, comrade, sword, sword belt, shield.
12. We shall *relinquish* our claims.
    reassert, modify, establish, abandon, enforce.
13. The boys were *loath* to remain in the city.
    eager, urged, unwilling, forced, lucky.
14. Why should he be considered *invincible?*
    stubborn, unconquerable inefficient, unprincipled, indispensable.
15. You appear *listless* today.
    restless, excited, nervous, not listening, indifferent.
16. It is reported that the regiment has been *annihilated.*
    withdrawn, reorganized, disbanded, defeated, destroyed.
17. Reading is *irksome* for some pupils.
    slow, disagreeable, easy, difficult, recreation.
18. The *proximity* of the enemy caused us to change our plans.
    surrender, strength, movements, nearness, boldness.
19. The *fangs* of this snake were very remarkable.
    markings, bones, tongue, teeth, eyes.
20. He did everything he could to *pacify* the man.
    avoid, satisfy, quiet, encourage, anger.
21. He looked at me *askance.*
    pleadingly, eagerly, suspiciously, boldly, timidly.
22. His *egotism* was often commented upon.
    eagerness, loneliness, popularity, modesty, self-conceit.
23. His brother tried to *hamper* him in every way.
    assist, tease, amuse, hinder, encourage.
24. His grandfather was an *itinerant* preacher.
    famous, old-fashioned, eloquent, traveling, pioneer
25. The girl received a *paltry* gift for her valuable services.
    useful, appropriate, small, beautiful, generous.
26. *Tenacity* of purpose was his most marked characteristic.
    uncertainty, changeableness, lack, firmness, honesty.
27. This was one of the greatest *catastrophes* in our history.
    mistakes, periods, events, victories, disasters.
28. *Copious* showers fell during the day.
    light, occasional, cooling, abundant, welcome.
29. These letters seem to be *authentic.*
    well-written, forgeries, interesting, similar, genuine.
30. *Amicable* relations continued for some time.
    business, abominable, friendly, admirable, strained.

31. The travelers found a few *nomads* in these regions.
traders, outlaws, monks, wanderers, mud huts.
32. He was always able to find a *vulnerable* spot.
weak, protected, cool, shady, comfortable.
33. I found him to be a very skillful *antagonist.*
guide, physician, musician, opponent, assistant.
34. He became the foe of all *malefactors.*
working-men, charity-workers, mankind, evil-doers, traitors.
35. The enemy did not understand our *strategy.*
language, plans, condition, proposals, strength.
36. His *pugnacious* character was revealed by this act.
gracious, fighting, cowardly, dogged, haughty.
37. My friend has received an *anonymous* letter.
annoying, important, business, unsigned, amusing.
38. The *mural* decorations were very beautiful.
floral, wedding, wall, rustic, funeral.
39. The two columns were quite *symmetrical.*
similar, well preserved, well proportioned, ill shaped, massive.
40. The man at once assumed a *belligerent* attitude.
indifferent, attentive, humble, warlike, friendly.
41. The *chronology* of these events is uncertain.
explanation, outcome, cause, dating, importance.
42. We listened in silence to the *nocturnal* sounds.
night, musical, mournful, distant, strange.
43. The man was well known as a *philanthropist.*
scientific writer, banker, philosopher, generous giver, stamp collector
44. The contract has been *annulled.*
signed, fulfilled, awarded, annual, cancelled.
45. A lasting *antipathy* soon developed between the men.
partnership, friendship, dislike, rivalry, sympathy.
46. The king ordered the man *decapitated.*
captured, rewarded, imprisoned, beheaded, exiled.
47. His speech was largely a *eulogy* of our leaders.
biography, description, criticism, praise, denunciation.
48. He has made an investigation of *urban* conditions.
foreign, business, country, city, railroad.
49. His writings contain many *archaic* words.
difficult, long, foreign, new, old.
50. An *equestrian* statue was erected in his honor.
large, standing, horseback, bronze, marble.

ULLMAN-KIRBY LATIN COMPREHENSION TEST

FORM 1

By B. L. ULLMAN and T. J. KIRBY,
University of Iowa

LEAVE THIS PAGE UP UNTIL YOU ARE TOLD TO PROCEED

Information to be Supplied by the Pupil

1. Write your name here..... Date.....
   (Last Name) (First Name)
2. City..... State.....
3. Name of your school.....
4. How old are you?.... Years and.....months.
5. Boy or girl?.....
6. In what grade are you? (7th, 8th, 9th, 10th, 11th, 12th).....
7. How many semesters (half-years) including the present semester have you studied Latin?.....
8. Name if you can the first Latin book you studied?.....
9. What Latin readers, if any, besides your first Latin book have you studied?.....
10. Underscore the names of the Latin authors you have studied so far. Caesar, Cicero, Nepos, Ovid, Sallust, Virgil, ..., ...

To the Teacher: Please help the pupil to supply the information asked for above.

Instructions to the Pupil

To the Teacher: Please read these instructions aloud with the pupils and make sure that all thoroughly understand them.

You will find below a Latin paragraph. Read it through for the thought to see if you can answer the questions which follow. Write the answers in English on the dotted lines. You may refer to the paragraph as often as you like in answering the questions.

PRACTICE PARAGRAPH

Duōs fīlīos agricola habēbat, Mārcum et Sextum. Magnus erat Sextus et Mārcus erat parvus. Pater parvum fīlium magis amābat et eum ad urbem saepe mittēbat.

(*a*) Which was more loved by his father, Sextus or Marcus?.....
(*b*) Where did his father send Marcus?.....

To the Teacher: Allow the pupils about a minute in which to fill in the answers to these questions, and then give them the correct answers.

When you are told to do so, turn to page 2 of this folder and try to answer as many questions as possible. Remember that you may refer to the Latin paragraph as often as you wish. If you come to a question you can't answer skip it and go on. Go back to it later if you have time. It is not expected that you will be able to answer all the questions. You will be allowed 30 minutes in which to work. When you have done all you can, hand in your paper.

To the Teacher: When all seem to understand what they are to do, say, "Ready, turn to page 2 and begin!" Make a note of the exact time. At the end of 30 minutes take up all papers not yet handed in. Tell the pupils not to ask questions after the signal to begin is given.

To the Teacher: Keep the papers together by class sections. Indicate on a separate sheet of paper the content which this class has studied if it has varied from the common content.

Number of answers correct..... Pupil's score.....

PARAGRAPH I

Read this and then write the answers. Read it again if you need to.

Puer Rōmānus erat quī Mārcus appel ābātur. Idem nōmen pater habēbat quod fīlius. Pater puerī magnam domum Rōmae habēbat. In hāc urbe puer et māter habitābant. Pater mīles in Galliā erat, ubi multōs annōs pugnāverat. Etiam puer mīles in exercitū esse volēbat.

1. What was the name of the boy's father?.....
2. Which members of the family were in Rome?.....
3. What did the boy want to be?.....
4. What had his father done?.....

PARAGRAPH II

Read this and then write the answers. Read it again if you need to.

Vir et fīlius cum servō ad urbem Rōmam iter faciēbant. Prīmā lūce profectī erant. Ad flūmen altum vēnērunt quod prīmō trānsīre nōn poterant. Sed nāvis parva ā servō vīsa est in quā duōbus sōlīs locus erat. Itaque nāvī servus cum puerō trānsiit; tum patrem puerī trānsportāvit. Eādem nocte ante prīmam lūcem omnēs ad urbem pervēnērunt.

5. About how long did it take the travelers to reach Rome?.....
6. Who found the boat?.....
7. Who were in the boat on the last trip across the river?.....

PARAGRAPH III

Read this and then write the answers. Read it again if you need to.

Tum Varrō omnī interclūsus itinere Caesarem certiorem faci parātum sē esse legiōnem trādere. Ille ad eum Sextum mittit atque huic trādī iubet. Trāditā legiōne Varrō ad Caesarem venit.

8. What did Varro tell Caesar he was ready to do?.....
9. To whom did he surrender his legion?.....
10. What did Varro do next?.....

PARAGRAPH IV

Read this and then write the answers. Read it again if you need to.

Calēnus legiōnibus equitibusque in nāvēs impositīs, ut erat imperātum ā Caesare, nāvēs solvit, paulumque ā portū prōgressus litterās ā Caesare accēpit quibus est certior factus portūs lītoraque omnia classibus hostium tenērī. Quō cognitō omnēs nāvēs revocat.

11. Why did Calenus put his troops on ships?.....
12. Where did Calenus receive Caesar's letter?.....
13. What did Calenus do after reading the letter?.....

PARAGRAPH V

Read this and then write the answers. Read it again if you need to.

Itaque nūllā interpositā morā Caesar impedīmenta omnia prīmā nocte ex castrīs Apollōniam praemīsit. Hīs praesidiō ūna legiō missa est. Duās in castrīs legiōnēs retinuit, reliquās sex dē quārtā vigiliā ad idem oppidum praem sit.

14. How many legions did Caesar send out at nightfall?.....
15. For what purpose?.....
16. What was the total number of legions sent by Caesar to Apollonia?.....

PARAGRAPH VI

Read this and then write the answers. Read it again if you need to.

Hīs rēbus gestīs Cūriō ā Bagradā flūmine exercitum Uticam dūcit et prope oppidum castra pōnit, Nōndum opere castrōrum perfectō explōrātōrēs nūntiant hostēs Uticam venīre. Eōdemque ferē tempore prīmum agmen eōrum erat in cōnspectū. Hāc rē Cūriō permōtus praemittit equitēs quī impetum morentur; ipse celeriter ab opere dēductīs legiōnibus aciem īnstruit.

17. Near what town did Curio pitch camp?.....
18. What report did Curio receive?.....
19. For what purpose did he send out the cavalry?.....
20. What were the other soldiers doing before they were drawn up in battle line?.....

PARAGRAPH VII

Read this and then write the answers. Read it again if you need to.

Hīc tamen hanc mēcum poteris requiēscere noctem
fronde super viridī: sunt nōbīs mītia pōma,
castaneae mollēs et dulcis cōpia lactis,
et iam summa procul vīllārum culmina fūmant,
maiōrēsque cadunt altīs dē montibus umbrae.

21. What does the speaker, a shepherd, say that his friend can do?.....
22. What is one kind of food mentioned?.....
23. What time of day is suggested in the last two lines?.....

PARAGRAPH VIII

Read this and then write the answers. Read it again if you need to.

Duae coniūrātiōnēs ā tē, Torquāte, cōnstituuntur, ūna quae Lepidō et Volcātio cōnsulibus patre tuō cōnsule dēsignātō facta esse dīcitur, altera quae mē cōnsule; hārum in utrāque Sullam dīcis fuisse.

24. According to the statement which the speaker (Cicero) makes to Torquatus, when did the second conspiracy take place?.....
25. To what extent is Sulla said to have been involved?.....
26. Who says so?.....

PARAGRAPH IX

Read this and then write the answers. Read it again if you need to.

At nōs M. Lepidus ad pācem adhortātur. Nūllīus apud mē, patrēs cōnscrīptī, auctōritās maior est quam M. Lepidī vel propter ipsīus virtūtem vel propter familiae dignitātem. Accēdunt eōdem multa prīvāta magna eius in mē merita, mea quaedam officia in illum. Maximum vērō eius in mē beneficium numerō, quod bonō animō in rem pūblicam est, quae mihi vītā meā semper fuit cārior.

27. Whose influence with the speaker (Cicero) is greater than that of Lepidus? .....
28. What does Cicero regard as Lepidus' greatest service to him?.....
29. Why does he regard this service so highly?.....
30. To whom is Lepidus indebted for favors?.....

PARAGRAPH X

Read this and then write the answers. Read it again if you need to.

Nūntius exanimī suspēnsus pectora cursū
Aepytus ad rēgem, portae statiōne relictā,
tendit et haec trepidō vix intellēctus anhēlat:
"Linque piōs cultūs intempestīvaque, rēctor,
sacra deum: frāter mūrīs circum omnibus īnstat
nōmine tē crēbrō, tē sōlum in proelia poscēns."

31. Why was it hard for the king to understand what the messenger said? .....

32. What does the messenger urge the king to stop doing? .....

33. What did the king's brother demand? .....

MEMORANDUM

Concerning the Controlled Experiment in the Teaching of the Knowledge of English Words in five high schools of Philadelphia and vicinity, beginning February 1, 1922, and ending June, 1923, to be conducted by Mr. A. A. Hamblen and Mr. R. I. Haskell, under the auspices of the Department of Education, University of Pennsylvania, with the co-operation of the Investigating Committee of the American Classical League.

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1. The Investigating Committee will furnish free of charge all material necessary for running the initial test with all pupils entering the first-year classes at the opening of the second semester, 1921–22, in the five schools participating, as follows: Thorndike's Test of Word Knowledge, Form B. Carr's English Vocabulary Test, Form A.

2. The Investigating Committee will furnish free of charge for all pupils included in the experiment, tests to measure growth in English Vocabulary at the end of one, two and three semesters, as follows: Thorndike's Test of Word Knowledge, Forms C, D and E. Carr's English Vocabulary Test, Forms B, C and E.

3. The Investigating Committee will furnish, if possible, at the end of each of the three semesters, and certainly at the end of the third semester in May-June, 1923, standard tests in Latin and in English to measure the achievement of both experimental and control groups in the subject matter of Latin, and of English.

4. Mr. Hamblen and Mr. Haskell will be responsible for scoring, tabulating, and interpreting the results of the initial and follow-up tests given in connection with the whole experiment.

5. Before the opening of the second semester of 1921–22, Mr. Hamblen and Mr. Haskell will prepare and furnish, to all the teachers of the Experimental Classes in Latin and in English, a tentative plan of procedure, to include the following items:

(*a*) A list of fairly familiar English derivatives for each vocabulary lesson in the various Latin texts being used in the different schools, and covering that portion of the texts to be completed during the first semester of study, this list to be available as a handy reference for illustrative material to be used in stimulating the pupils' interest in the relation between English and Latin words, and in creating the habit of word analysis.

(*b*) A list of 300 less familiar English words following roughly the order indicated by the lesson vocabularies in the Latin texts; these words to be used as exercises in problem solving, both at sight in class, and as assigned homework.

(*c*) A list of suggestions for class-room procedure compiled from the literature on the teaching of Latin and English, and from letters of inquiry addressed to various teachers of these subjects, who have been experimenting with the correlation of Latin and English.

6. Before the opening of the two succeeding emesters, Mr. Hamblen and Mr. Haskell will prepare and furnish a similar plan of procedure to cover mate ial and method for that semester.

7. By means of memoranda, conferences and visits, Mr. Hamblen and Mr. Haskell will undertake to carry out some simple but effective plan of keeping a record of the special methods being employed by the various teachers concerned in the experiment and of the proportion of time devoted to this feature of the work; so that it will ultimately be possible to describe in detail by semesters the method and content which has been employed in each class participating in the experiment.

8. Soon after the opening of the coming semester, Mr. Hamblen and Mr. Haskell will arrange for a conference of all teachers of Experimental Classes, both in Latin and in English, to discuss and develop plans for the semester; and especially to arrive at a definite understanding concerning any marked variations in content or method which it may seem desirable to adopt in any particular school.

9. The Investigating Committee will be responsible for publishing the final results of the experiment.

Signed: ALBERT A. HAMBLEN.
R. I. HASKELL.

W. L. CARR,
For the Investigating Committee.

Approved by:
Arthur J. Jones,
Professor of Secondary Education,
Department of Education, University of Pennsylvania.

CONTROLLED EXPERIMENT

UNDER THE AUSPICES OF THE DEPARTMENT OF EDUCATION, UNIVERSITY OF PENNSYLVANIA, AND IN CO-OPERATION WITH THE INVESTIGATION COMMITTEE OF THE AMERICAN CLASSICAL LEAGUE

Class-room devices suggested for teaching English Vocabulary in connection with the First Year Latin—First Semester.

It is important to keep before the pupil from the first day the fact that nearly all the less familiar or more difficult words in the English language, and especially those which the pupils are likely to meet for the first time after entering high school, are derived directly or indirectly from the Latin; and to show them by concrete examples how the study of Latin may be made to help them learn and retain the meaning of these words.

As each word is taken up in the Latin vocabulary, elicit from the pupils and suggest to them one or more English derivatives from as many Latin words as possible. It is a good plan to distinguish between English and Latin words taken over directly and therefore preserving the spelling of the Latin stem, such as *probable* and *probation* from probare, and the less obvious derivatives that have come through the French with change of spelling, such as *prove* from probare and *receive* from *recipere*.

It is also important to make a distinction between words that are likely to be familiar to the majority of pupils in the class and words probably unfamiliar; and accordingly to use the former for illustrations in discussing the Latin vocabulary and to assign the latter as problems for class solution or homework.

In order to give permanence and continuity to the work in derivations, it is very desirable to have the pupils prepare and keep a Derivative Note Book (such as is suggested by Perkins in the *Cl. Journal*, 12,133, November, 1916) in which they shall record among other entries a selected list of derivatives approved by the teacher. It is recommended that a uniform arrangement be required. The following plan for two pages facing each other has been found very satisfactory.

LATIN WORD STEM UNDERLINED	FAIRLY FAMILIAR ENG. DERIVATIVE STEM	STEM CHANGED	LESS FAMILIAR ENG. DERIVATIVE	ILLUSTRATION OF USE

1. probare	probable	prove	probation	NOTE—An excellent plan
		approve	approbation	is to have the pupils
probatus		Fr. prouver	probate	find actual quotations
2. recipere	recipe	receive	recipient	from their English
		Fr. recevoir		reading.
3. receptus	reception	receipt		
4. caput	capital	chief	recapitulate	
		Fr. chef		

So arrange the work of the class period that a definite amount of time may be given each day, or each week, to derivative work including note-book work (suggested above). Here follows some profitable suggestions for class or home work.

1. As Latin prepositions appear on the lesson vocabularies discuss their use as prefixes. Give examples (including cases of assimilation such as ad-approbation), and have pupils set aside a page in the derivative note-book for these examples.

2. Similarly, have the pupils set aside a page for the more common English suffixes and examples of their use, such as -ation in approbation.

3. Review derivatives of 25 or 50 Latin words on the basis of their English derivation, *e. g.*, what Latin word is connected by derivation with filiar? aquarium?

4. Have pupils report Latin derivatives as they discover them in the technical vocabularies of other high school subjects, *e. g.*, *sci*ence, *tri-angle*, *bisect*, *divide*, *divid*end, *tangent*, *minus*, *sub-tract*, and after discussion have the pupils enter them on pages set aside in their note-books for that purpose.

5. Have pupils especially interested bring in lists of Latin (or derived French or Italian) words and phrases used in music, law, medicine, etc., *e. g.*, tempo, solo, alto, accelerando, habeas corpus, mandamus, sub-poena, corpuscle.

6. Collect advertisements containing names of Latin elements such as lux, luxite, velox, corona, regina, sonora, mavis.

7. Make a list of Latin abbreviations commonly used in English together with their full Latin forms such as *exempli gratio*, *i. e.*, etc.

8. Have the pupils hand in about ten English sentences (quotations from their reading, preferably) containing a high percentage of words of Latin origin.

9. Have the pupils try to rewrite these sentences so as to eliminate as many Latin words as possible.

10. Have pupils hand in say ten sentences (quotations from their reading, preferably) containing few, if any words of Latin origin.

11. Trace for your pupils the history of a few especially interesting English words which illustrate a change of meaning from the original meaning of the Latin elements from which they are derived; *e. g.*, pare, canary, carnival, ambition, candidate, minister, master.

TERMAN GROUP TEST OF MENTAL ABILITY

(For Grades 7 to 12)

Prepared by Lewis M. Terman, Stanford University, California

Examination: Form A

1. Name ..... (First name / Last name)
2. Boy or girl.....Grade.....High or low.....
3. Age last birthday.....Date of birthday..... (Month / Day)
4. Name of city (or county).....
5. Name of school.....
6. Name of teacher.....
7. Date of this examination.....19.... (Month / Day / Year)

Do not turn the page until you are told to.

TEST	SCORE	REMARKS OR FURTHER DATA
1. Information		
2. Best Answer		
3. Word Meaning		
4. Logical Selection		
5. Arithmetic		
6. Sentence Meaning		
7. Analogies		
8. Mixed Sentences		
9. Classification		
10. Number Series		
Total		

TEST 1. INFORMATION

Draw a line under the ONE word that makes the sentence true, as shown in the sample.

SAMPLE. Our first President was
Adams Jefferson Lincoln Washington

1 Coffee is a kind of
bark berry leaf root 1
2 Sirloin is a cut of
beef mutton pork veal 2
3 Gasoline comes from
grains petroleum turpentine seeds 3
4 Most exports go from
Boston San Francisco New Orleans New York ... 4
5 The number of pounds in a ton is
1000 2000 3000 4000 5

6 Napoleon was defeated at
Leipzig Paris Verdun Waterloo 6
7 Emeralds are usually
blue green red yellow 7
8 The optic nerve is for
seeing hearing tasting feeling 8
9 Larceny is a term used in
medicine theology law pedagogy 9
10 Sponges come from
animals farm forests mines 10

11 Confucius founded the religion of the
Persians Italians Chinese Indians 11
12 The larynx is in the
abdomen head throat shoulder 12
13 The piccolo is used in
farming music photography typewriting 13
14 The kilowatt measures
rainfall wind-power electricity water-power 14
15 The guillotine causes
death disease fever sickness 15

16 A character in "David Copperfield" is
Sinbad Uriah Heep Rebecca Hamlet..... 16
17 A windlass is used for
boring cutting lifting squeezing..... 17
18 A great law-giver of the Hebrews was
Abraham David Moses Saul..... 18
19 A six-sided figure is called a
scholium parallelogram hexagon trapezium..... 19
20 A meter is nearest in length to the
inch foot yard rod..... 20
Right.....

TEST 2. BEST ANSWER

Read each question or statement and make a cross before the BEST answer, as shown in the samp'e.

SAMPLE

Why do we buy clocks? Because
1 We like to hear them strike.
2 They have hands.
×3 They tell us the time.

1 Spokes of a wheel are often made of hickory because
1 Hickory is tough.
2 It cuts easily.
3 It takes pa nt nicely.
2 The saying, "A watched pot never boils," means
1 We should never watch a pot on the fire.
2 Boiling takes a long time.
3 Time passes slowly when we are waiting for something
3 A train is harder to stop than an automobile because
1 It has more wheels.
2 It is heavier.
3 Its brakes are not so good.
4 The saying, "Make hay while the sun shines," means
1 Hay is made in summer.
2 We should make the most of our opportunities.
3 Hay should not be cut at night.

5 If the earth were nearer the sun
- 1 The stars would disappear.
- 2 Our months would be longer.
- 3 The earth would be warmer.

6 The saying, "If wishes were horses, beggars would ride," means
- 1 Wishing doesn't get us very far.
- 2 Beggars often wish for horses to ride.
- 3 Beggars are always asking for something.

7 The saying, "Little strokes fell great oaks," means
- 1 Oak trees are weak.
- 2 Little strokes are best.
- 3 Continued effort brings results.

8 A steel battleship floats because
- 1 The engines hold it up.
- 2 It has much air space inside.
- 3 It contains some wood.

9 The feathers on a bird's wings help him to fly because
- 1 They make a wide, light surface.
- 2 They keep the air off his body.
- 3 They decrease the bird's weight.

10 The saying, "A carpenter should stick to his bench," means
- 1 Carpenters should not work without benches.
- 2 Carpenters should not be idle.
- 3 One should work at the thing he can do best.

11 The saying, "One swallow does not make a summer," means
- 1 Swallows come back for the summer.
- 2 A single sign is not sufficient proof.
- 3 Many birds add to the pleasures of summer.

Right..... $\times 2 =$ *Score*.....

ENGLISH DERIVATIVES BASED ON THE LESSON VOCABULARIES OF COLLAR AND DANIELL'S FIRST YEAR LATIN

(Thornton Jenkins' Revision)

LESSON I

LATIN WORDS	FAIRLY FAMILIAR DERIVATIVES	LESS FAMILIAR DERIVATIVES
agricola	*agricul*ture	*agricul*turalist
	agricultural	**agricol*ation
nauta	*naut*ical	*naut*ically
		*naut*ilus
		cf. argo*naut*
*puell*a	cf. *puer* (Lesson XII)	
et	*etc.* (*et* cetera)	*et* al (*et* alii)
*ambul*are		*amble*
		*ambul*ance
		*ambul*ator
		pre*amble*
		per*ambulate*
		per*ambulator*
		*fun*ambul*ist
		somn*ambul*ation
*appropinqu*are	cf. *prope* (Latin)	*propinq*uity
*cant*are	cf. Latin *can*ere	*cant*
	cf. *chant* (through French)	*cant*ata
	cf. en*chant*	*cant*icle
	cf. ac*cent* (through French)	*can*to
		cf. des*cant*
		cf. in*cent*ive
		cf. pre*cent*er
		in*cant*ation
		re*cant*

Note: Words need not be treated fully as they first appear; especially words marked with the "" should be reserved for use later as "problems".

ENGLISH DERIVATIVES: COLLAR AND DANIELL

LESSON XX (continued)

LATIN WORDS	FAIRLY FAMILIAR	LESS FAMILIAR
*ador*are	*ador*e	*ador*ation
*or*atio (LX)	*or*ation	*ador*able
*or*are (LXVIII)	*or*ator	*or*atory
		*or*atorical
		per*or*ation
*anim*us	*anim*ate	*anim*us
	un*anim*ous	un*anim*ity
	*anim*osity	equ*anim*ity
	magn*anim*ous	magn*anim*ity
		*parv*anim*ity
		*pusill*anim*ity
*imperi*um	*imperi*ous	*imperi*alism
*impera*re (LII)	*imperi*al	*impera*tor
*impera*tor (XLI)	*impera*tive	
	cf. *empir*e (through French)	
	cf. *emper*or (through French)	

LESSON XXI

bene	cf. *bene*fit (through French)	*bene*factor
		*bene*diction
		*bene*volent
		*bene*ficial
		*bene*ficient, *bene*ficence
		*bene*ficiary
		**bene*fice
ducere (*duct-*)	re*duce*	*duci*
	re*duct*ion	*duct*ile
	intro*duce*	aque*duct*
	in*duce*	via*duct*

ENGLISH DERIVATIVES: COLLAR AND DANIELL

LESSON XXI (continued)

LATIN WORDS	FAIRLY FAMILIAR	LESS FAMILIAR
	pro*duce*	con*duce*
	pro*duct*ion	de*duce*
	con*duct*	de*duct*
	ab*duct*	tra*duce*
	con*duct*or	ad*duce*
	*duc*ate	*duce*
dux (*duc*is)	cf. *duke*	cf. con*duit*
	cf. *duch*ess	cf. *duch*y and *doge*
		*duc*at

LESSON XXII

*em*ere (*empt*us)	ex*empt*	ex*empt*ion
	ex*amp*le	ex*emp*lar
	*samp*le	ex*emp*lary
	pre*m*ium	ens*amp*le
	redee*m*	per*empt*ory
	red*empt*ion	pre*empt*
*mitt*ere	ad*mit*	e*mit*
(*miss*us)	com*mit*	trans*mit*
	o*mit*	trans*miss*ion
	per*mit*	pre*mise* or pre*miss*
	re*mit*	e*miss*ary
	sub*mit*	de*mise*
	com*miss*ion	com*miss*ary
	dis*miss*	inter*mit*
	pro*mise*	*miss*ive
	*miss*ion	*miss*ile
	compro*mise*	*miss*ionary
		cf. *mess*age
*reg*ere	*reg*ent	*reg*iment
(*rect*us)	e*rect*	*rect*or
cf. *reg*ina (IV)	di*rect*	*rect*ify
rex (*reg-*)	cor*rect*	*reg*nant

LESSON XXII (continued)

(XXIII)	*reg*al	incor*rig*ible
*regn*um (LXVI)	cf. *roy*al	*reg*icide
*reg*alis	cf. *real*m	inter*regn*um
	cf. *reg*ion	*reg*ality
	cf. *reign*	*reg*alia
		**reg*imen
*al*a	cf. *aisle*	**al*iped (Zool.)
*cer*a		**cer*aceous
		**cer*ago
*apt*are	ad*apt*	ad*apt*ation
	cf. *apt* (adipisci, adeptus)	ad*apt*able
		cf. ad*ept* (adipisci, adeptus)
*confirm*are	*confirm*	*confirm*atory
	*confirm*ation	*firm*ament
*firm*us	in*firm*ity	af*firm*ation
	af*firm*	in*firm*
	firm	in*firm*ary
	farm	
*decid*ere	*cas*ual	*decid*uous (Biol.)
*cad*ere (*cas*us)	*cas*e	*cas*ualty
	occ*as*ional, occ*as*ion	occ*id*ent, occ*id*ental
	acc*id*ent, acc*id*ental	*cad*ence
	inc*id*ental, inc*id*ent	coinc*ide*, coinc*id*ence
		*cad*ucous
	cf. dec*ay*	dec*ad*ence
	cf. chance	cf. chute
*fing*ere (*fict-*)	*fict*ion	*fict*itious
	cf. *feign* (through French)	*fict*ile
	cf. *faint* (through French)	ef*fig*y
*postul*are	*postulat*e	ex*postulat*e
*solv*ere	*solve*	dis*solute*
(*solot*us)	*solut*ion	*solu*ble
	dis*solve*	*solut*e
	dis*solut*ion	dis*solu*ble
	re*solve*	*solv*ent
	re*solut*ion	in*solv*ent
	ab*solve*	ab*solut*ion
	ab*solut*e	
*vol*are	cf. *vol*ley	*volat*ile
		**volat*ilize
		**vol*ant

Lesson XXIII

caput (capit-)		
	*capit*al	*capit*ulate
	*capit*ol	re*capit*ulate
	cf. *cap*e	pre*cip*ice
	cf. *capt*ain	pre*cipit*ate
	cf. *hapt*er	de*capit*ate
	cf. *chi*ef	**occiput* (Anat.)

Appendix

IMPORTANT LATIN PREFIXES

PREFIX	MEANING	ILLUSTRATION
1. ab (a, abs)	from	ab-solve
2. ad (ac, a, al, af, an)	to, toward	an-nihil-ate
3. ambi (amb)	around, about	amb-ition (note change in meaning)
4. ante	before	ante-cedent
Note: anti (Gr) = against		
5. bene (adverb)	well	bene-factor
6. bi (bis)	twice, two	bi-monthly
7. circum	around, about	circum-stance
8. com (cum, co, col, con, cov) with, together, thoroughly		co-ordinate.

LATIN SUFFIXES

IN ENGLISH	FROM ORIGINAL	MEANING
1. -able, -ible, -ble,-ile, -il	-ibilis, -ilis,	able to, fit, causing
2. -acious, -aceous	-ax-	inclined to, full of
3. -al	-alis	relating to, act of
4. -age	-acticus	condition of, act of
5. -an, -ane, -ain, -ian	-anus	inhabitant of, one who
6. -ance, -ancy, -ence, -ency	-antia, -entia	state of being, act of
7. -ant, -ent	-ans, -ens (Pres. Participle)	one who, thing which

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